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EU commodity market development: Medium-term agricultural outlook

Proceedings of the October 2016 workshop

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Abstract

The workshop on the *'EU commodity market development: Medium-term agricultural outlook'* is an integral part of the intensive validation procedure of the results of the European Commission's report on *'Prospects for EU agricultural markets and income'*. It provides a forum for presentations on preliminary 10-year-ahead projections in EU agricultural commodity markets, and discussing in-depth the EU prospects in a global context. This year the workshop was held on October 25-26 in Brussels. The workshop was jointly organized by the Joint Research Centre (JRC) and the Directorate-General for Agriculture and Rural Development (DG AGRI). Participants included policy makers, modelling and market experts from various countries, as well as stakeholders of the agri-food industry. This document summarizes the presentations and discussions on the macroeconomic and energy assumptions associated with this outlook, and on each of the EU agricultural markets addressed (arable crops, biofuels, sugar, fruits/vegetables/olive oil/wine, milk and dairy, meat).

EU commodity market development: Medium-term agricultural outlook

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Thomas Chatzopoulos, Thomas Fellmann, Hans Jensen

Table of contents

Foreword

The workshop on the *'EU commodity market development: Medium-term agricultural outlook'* is part of an annual workshop series on market modelling and development[1]. The workshop is an integral part of the intensive validation procedure of the results of the European Commission's report on *'Prospects for EU agricultural markets and income'*. It provides a forum for presentations on preliminary 10-year-ahead projections in EU agricultural commodity markets and for discussing in-depth the EU prospects in a global context.

This report contains a summary of the presentations and subsequent discussions from the 2016 workshop, held on October 25 and 26 at the Museum of Natural Sciences in Brussels, Belgium. The workshop was jointly organized by the Sustainable Resources Directorate (D.4) of the European Commission's Joint Research Centre (JRC) and the Directorate-General for Agriculture and Rural Development (DG AGRI).

Participants in this year's workshop included high-level policymakers, modelling and market experts from various countries, stakeholders from the agri-food industry, and representatives from international organizations, such as the Organization for Economic Co-operation and Development (OECD), the Food and Agriculture Organization of the United Nations (FAO), and the World Bank. Special attention was given to the sensitivity of the projections to different settings and assumptions (e.g., uncertainties regarding macroeconomic conditions, specific policies, supply and demand drivers).

Comments made during the workshop have been taken into account to improve the final version of the *'Prospects for EU agricultural markets and income, 2016-2026'*. The final outlook report, previous versions, and background information on the baseline construction and uncertainty analysis are available online:

http://ec.europa.eu/agriculture/markets-and-prices/medium-term-outlook/

[1] Previous workshop proceedings are listed in Annex 3.

Acknowledgements

We would like to acknowledge contributions made by all participants (see Annex 1 and 2) and their consent to share their expertise and comments, as well as the JRC staff involved in the organizational arrangements, particularly Leonor Rueda. We thank all contributing and participating colleagues from JRC (Giampiero Genovese, Ignacio Pérez Domínguez, Jesus Barreiro-Hurlé, Simone Pieralli, Silvia Kanadani Campos, Els De Rademaeker, Jean-Michel Terres, Maria Bielza, Maciej Krzysztofowicz) and DG AGRI (Fabien Santini, Tassos Haniotis, Pierluigi Londero, Sophie Hélaine, Koen Dillen, Koen Mondelaers, Benjamin Van Doorslaer). Finally, we thank the following invited external experts who were involved in the chairing of sessions, formal presentations and discussions:

Invited participant	*Affiliation*
Mamoun Amrouk	Food and Agriculture Organization of the United Nations (FAO)
Alexander Anton	European Dairy Association (EDA)
John Baffes	World Bank
Jack Baines	European Association of Dairy Trade (Eucolait)
Elie Bellevrat	International Energy Agency (IEA)
Pablo Bernardos Hernández	Spanish Ministry of Agriculture (MAGRAMA)
Philippe Binard	European Fresh Produce Association (Freshfel)
Richard Brown	GIRA
Philippe Chotteau	Institut de l'Elevage
Patty Clayton	Agriculture and Horticulture Development Board (AHDB)
Christophe Cogny	Tallage
Rafael del Rey	Observatorio Español del Mercado del Vino (OeMv)
Louisa Follis	Bunge
Li Ganqiong	Chinese Academy of Agricultural Sciences (CAAS)
Stephan Hubertus Gay	Organization for Economic Co-operation and Development (OECD)
Carole Gendron	Agriculture and Agri-Food Canada (AAFC)
Roel Jongeneel	Wageningen Economic Research, and AGMEMOD Consortium
Ad Klaassen	Dutch Produce Association (DPA)
Jaimie Lillo	International Olive Council
François Luguenot	InVivo

Timothé Masson	Confédération Générale de la Betterave (CGB)
Holger Matthey	Food and Agriculture Organization of the United Nations (FAO)
Seth Meyer	US Department of Agriculture (USDA)
Thordis Möller	BayWa AG
Markus Neundörfer	Südzucker AG
Arnaud Petit	COPA-COGECA
Francis Reid	Fonterra
Christian Renault	AND International
Matthew Stone	PRIMA
Elisabeth Waebroeck-Rocha	IHS Markit

Workshop agenda

DAY 1 - 25 OCTOBER 2016		
08:30	Registration and welcome coffee	
9:00 – 9:30 Session 1	**Background of the workshop**	
	Welcome and background	Tassos Haniotis, DG AGRI Giampiero Genovese, JRC
9:30 – 11:00 Session 2	**Macroeconomic and energy context Chair: Seth Meyer (USDA)**	
(20 min)	Baseline macro and policy assumptions	Pierluigi Londero, DG AGRI
(30 min)	Presentations	Elisabeth Waelbroeck-Rocha, IHS Elie Bellevrat, IEA John Baffes, World Bank
(40 min)	Open discussion	All participants
11:00 – 11:30	Coffee break	
11:30 – 13:00 Session 3	**Cereals and oilseeds Chair: Silke Boger (DG AGRI)**	
(20 min)	EU agricultural outlook	Koen Mondelaers, DG AGRI Simone Pieralli, JRC
(30 min)	Presentations	Louisa Follis, Bunge François Luguenot, InVivo Ganqiong Li, CAAS
(40 min)	Open discussion	All participants
13:00 – 14:00	Networking lunch	
14:00 – 15:30 Session 4	**Sugar Chair: Mamoun Amrouk (FAO)**	
(15 min)	EU agricultural outlook	Koen Dillen, DG AGRI
(30 min)	Presentations	Markus Neundörfer, Südzucker Timothé Masson, CGB
(45 min)	Open discussion	All participants
15:30 – 16:00	Coffee break	
16:00 – 17:15 Session 5	**Biofuels Chair: Holger Matthey (FAO)**	
(20 min)	EU agricultural outlook	Koen Dillen, DG AGRI Silvia Kanadani Campos, JRC
(20 min)	Presentations	Christophe Cogny, Tallage Matthew Stone, PRIMA
(35 min)	Open discussion	All participants
17:15 – 18:15	**Parallel sessions - Detailed discussions on EU prospects**	
	Arable crops (Room A) Moderator: Arnaud Petit (COPA-COGECA)	Sugar and biofuels (Room B) Moderator: Thordis Möller (BayWa)
18:15 – 18:30	Wrap-up parallel sessions	
20:00	Networking dinner (self-pay)	

DAY 2 - 26 OCTOBER 2016		
08:30 - 09:00	Registration and welcome coffee Warm-up	 Maciej Krzysztofowicz (JRC)
9:15 – 10:20 Session 6	**Fruit and vegetables, olive oil, wine Chair: Joao Onofre (DG AGRI)**	
(10 min)	EU agricultural markets	Fabien Santini, DG AGRI
(30 min)	Presentations	Ad Klaassen, Dutch Produce Association Philippe Binard, Freshfel Jaime Lillo, International Olive Council Rafael del Rey, OeMv
(25 min)	Open discussion	All participants
10:20 – 10:45	Coffee break	
10:45 – 12:30 Session 7	**Milk and dairy markets Chair: Carole Gendron (AAFC)**	
(30 min)	EU agricultural outlook MS results	Sophie Hélaine, DG AGRI Roel Jongeneel, AGMEMOD consortium
(30 min)	Presentations	Jack Baines, Eucolait Francis Reid, Fonterra Patty Clayton, AHDB
(45 min)	Open discussion	All participants
12:30 – 13:30	Networking lunch	
13:30 – 15:00 Session 8	**Meat markets Chair: Stephan Hubertus Gay (OECD)**	
(20 min)	EU agricultural outlook	Benjamin Van Doorslaer, DG AGRI Ignacio Pérez Domínguez, JRC
(30 min)	Presentations	Philippe Chotteau, Institut de l'Elevage Pablo Bernardos Hernández, MAGRAMA Christian Renault, AND International
(40 min)	Open discussion	All participants
15:00 – 15:45 Session 9	**The outlook in terms of income and environment Chair: Mauro Poinelli (DG AGRI)**	
(10 min) (10 min) (25 min)	Income Environmental effects Open discussion	Koen Mondelaers, DG AGRI Jean-Michel Terres, JRC All participants
15:45 – 16:15	Coffee break	
16:15 – 17:30	**Parallel sessions - Detailed discussions on EU prospects**	
16:15 – 17:15	Milk and dairy (Room A) Moderator: Alexander Anton (EDA)	Meat (Room B) Moderator: Richard Brown (GIRA)
17:15 – 17:30	Wrap-up parallel sessions and closure of the workshop	

Abbreviations and acronyms

ASEAN	Association of Southeast Asian Nations
AWU	Annual working unit
CAP	Common Agricultural Policy of the EU
CO_2	Carbon dioxide
cwe	Carcass weight equivalent
DDGs	Dried distillers grains
DG AGRI	Directorate-General for Agriculture and Rural Development
EFA	Ecological Focus Area
EU	European Union
EU-N13	EU member states that joined in 2004 or later
EU-15	EU member states before 2004
EU-28	EU member states (2016)
EUR	Euro (currency of the Eurozone)
FAO	Food and Agriculture Organization of the United Nations
FTA	Free-trade agreement
GDP	Gross domestic product
GHG	Greenhouse gas
GMO	Genetically modified organism
JRC	Joint Research Centre
MENA	Middle East and North America
MS	EU member state
OECD	Organization for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PO	Producer Organization
RED	Renewable Energy Directive
RMB	Renmibi (currency of the People's Republic of China)
SMP	Skimmed milk powder
UAA	Utilized agricultural area
UK	United Kingdom
US	United States of America
USD	US dollar
VCS	Voluntary coupled support
WMP	Whey milk powder
WTO	World Trade Organization

1 Introduction

Tassos Haniotis (DG AGRI) and Giampiero Genovese (JRC) set the scene for the workshop by presenting challenges and drivers for the Common Agricultural Policy (CAP) of the EU and providing background information on the EU agricultural outlook and its construction process.

1.1 Agricultural policies at a crossroads - Global challenges and drivers for change: any lessons from the CAP?

Tassos Haniotis (DG AGRI) highlighted the importance of the agricultural outlook exercise, in particular the annual definition of a baseline and the use of scenarios in answering policy questions. He started his keynote by emphasizing that as a result of dynamically changing commodity markets, the EU agricultural policy faces a number of challenges. He used developments in the EU dairy sector to exemplify this point. After periods of seasonal variability in the farm-gate milk price up to 2007, the EU intervention price decreased and the world price rose. EU and world prices eventually converged, and from that moment the EU market has been characterized by volatility. Co-moving with world prices, EU milk prices reached a peak in 2013-2014 and have displayed a downward trend since then. The latter can be attributed to both internal and external factors, such as the increase in the global and EU milk production, the Russian import ban, and slow growth in Chinese import demand. It is, therefore, a big challenge for the EU agricultural policy to tackle internal issues (e.g., productivity and sustainability) simultaneously with price volatility, trade, and competitiveness issues.

In the context of evolving economies around the globe, several developments in the EU agricultural sector can be observed. Examples include the closed price gap between EU and world market prices for wheat and milk, a decreasing price gap for sugar and beef, the turning of agri-food trade deficits into surpluses during the last decade, and the stabilization of EU farm income. These developments are attributable to structural changes in farm costs and revenues.

Mr. Haniotis took the audience through the historical evolution of the CAP reform path in line with policy changes. In the 1980s, CAP spending focused heavily on export subsidies that rose by the end of the decade due to agricultural surpluses. With the MacSharry reform in 1992, market price support was replaced by direct producer support. With the Fischer reform in 2003, most direct payments were decoupled from production as they were based on historical farm receipts. Rural development expenditure continued to rise and market support to decrease with the 2008 Health Check. Although CAP expenditure has stabilized in nominal terms, it has in fact declined as a share of GDP from 0.66% in the 1990s to 0.39% in 2015.

The CAP has evolved considerably in recent decades to support farmers in facing new challenges. The successive CAP reforms of the past mean that EU farmers now better react to price signals and base their production decisions on market demand. Overall, recent reforms shift the policy focus towards *(i)* a fairer support system for farmers, *(ii)* risk management, *(iii)* greener farming practices, and *(iv)* the promotion of rural development and growth. These challenges will be successfully addressed only with the recognition of the agricultural sector as a multi-service system; agriculture may have a low sectorial weight in the total economy, but it can synergistically address numerous economic, environmental, and social challenges through linkages with other sectors of the economy.

1.2 The EU agricultural outlook process

As an introduction to the workshop, Giampiero Genovese (JRC) provided background information on the EU agricultural outlook and its construction process, emphasizing the importance of this workshop in the overall validation process of market projections. Receiving feedback from market experts allows for the development of a realistic starting point for the design and update of EU agriculture and rural development policies.

The European Commission has annually published the EU outlook on medium-term agricultural market developments since 2008. In essence, the aim of this outlook is the consolidation of a 10-year-ahead reference timeline for the purpose of counterfactual policy analysis at the EU level. This timeline comprises sets of baseline projections that are derived under assumptions governing macroeconomic factors (e.g., GDP, inflation, oil prices, exchange rates, consumer prices, population growth) and EU and non-EU region-specific policy settings. The baseline assumes normal weather conditions and the absence of production disruptions due to plant and animal diseases, deviations from which can be assessed with scenario analysis.

After the publication of the OECD-FAO medium-term outlook on July 4 but before the publication of the EU outlook on December 6, the OECD-FAO outlook is revised and updated by the European Commission in-house (Figure 1). These adjustments pertain to the EU part of the outlook. With a close collaboration between DG AGRI (Agricultural Modelling and Outlook Unit) and JRC (Economics of Agriculture Unit, former AGRILIFE Unit), new model developments and the latest EU agricultural short-term figures are incorporated, macroeconomic factors and oil prices are updated, and further information and feedback from market experts is included into the medium-term baseline. At the core of this process is the so-called *baseline week*; an intensive technical exercise organized on a yearly basis in early October in Brussels. During the baseline week, JRC and DG AGRI examine and consolidate a preliminary baseline using the Aglink-Cosimo model. This is accomplished with consistency checks, model re-fitting, as well as subsequent feedback from the DG AGRI market units until consensus on the preliminary projections across markets is achieved.

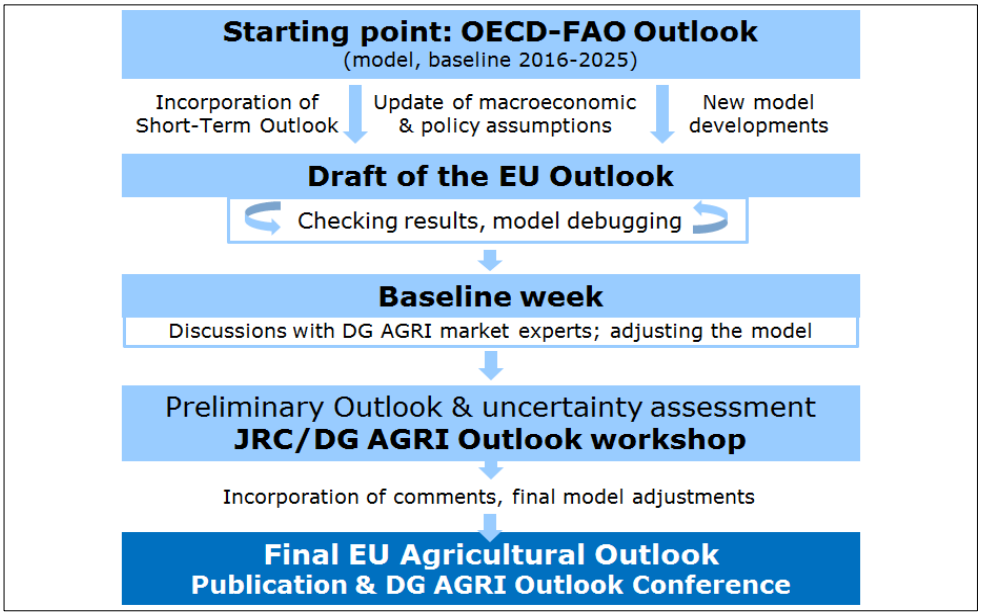


Figure 1: Construction of the EU outlook process

Source: Slides of Giampiero Genovese and Thomas Fellmann (JRC)

The preliminary agricultural market projections are presented in the EU outlook validation workshop, which is documented herein, in late October. Comments made during the outlook workshop are then taken into account to further improve the market projections. The final version of the *'Prospects for EU agricultural markets and income'* is published and presented in December at the EU Agricultural Outlook Conference in Brussels (this year taking place on December 6 and 7).

The core tool used to generate the medium-term projections is the European Commission's version of Aglink-Cosimo[2]. Aglink-Cosimo is a recursive, dynamic, partial equilibrium model for global agricultural commodity markets[3]. It covers 40 agricultural commodities and produces annual supply, demand, price, and trade estimates for 44 individual countries and 12 regions. It is developed, maintained, and funded by the OECD and the FAO Secretariats with a defined group of users from national administrations and research institutes in member countries.

The standard version of Aglink-Cosimo facilitates the elicitation of a deterministic baseline that serves as best-guess market developments 10 years ahead. To take into account unequivocal uncertainties that accompany agricultural markets, the EU outlook is supplemented with a partial stochastic analysis module that is maintained at the JRC. This year's workshop presentations included variability ranges in commodity price projections that consider alternative macroeconomic environments, yield levels, and oil prices.

In addition to the partial stochastic analysis, deviations from the baseline are examined with a series of deterministic counterfactual scenarios where assumptions with respect to major drivers of the EU agricultural markets are altered and model variables are shocked exogenously. This year's workshop included presentations of alternative scenarios pertaining to *(i)* the reform of the maize stockpiling policy in China, *(ii)* post-2020 alternative EU biofuel policies, and *(iii)* the effects of agricultural GHG emission targets on EU meat markets. Finally, this year's workshop included presentations with two other partial equilibrium models that focus on the member-state (MS) and regional levels respectively: AGMEMOD (milk and dairy; Section 7) and CAPRI (meat and environmental indicators; Sections 8 and 9).

[2] See http://www.agri-outlook.org/abouttheoutlook/
[3] See model documentation at http://publications.jrc.ec.europa.eu/repository/bitstream/JRC92618/jrc92618%20online.pdf

2 Macroeconomic and energy context

Macroeconomic factors such as GDP growth, exchange rates, trade agreements, and energy prices are important elements in the generation of the baseline. This year's presentations on macroeconomic and energy projections, given by Pierluigi Londero (DG AGRI), Elisabeth Waelbroeck-Rocha (IHS), Elie Bellevrat (IEA), and John Baffes (World Bank), are documented below.

2.1 Preliminary EU outlook, 2016-2026

In his presentation, Pierluigi Londero (DG AGRI) mentioned the assumptions made regarding trade relationships. The EU outlook assumes that the 2014 Russian ban on imports of agricultural products (incl. pigmeat) will remain in place until the end of 2017, and thus EU exports to Russia will start recovering in 2018. However, since it takes time for markets to re-establish, the actual timing of the temporary ban and scale of EU recovery are uncertain. Furthermore, only ratified free-trade agreements (FTAs) are considered in the baseline.

With regard to the CAP, on the one hand, voluntary coupled support (VCS) is integrated on the basis of MS declarations. The integration of greening measures (i.e., area-based payments owing to beneficial for the environment practices) is more complex. The impacts of the greening requirement for crop diversification are assumed to balance out at the aggregated level, although it is recognized that country-level impacts may differ. Permanent grassland is assumed to remain stable throughout the projection horizon (33% in total arable land), whereas fallow land will decrease from 6.7% (2015) to 6% (2026). The requirements on Ecological Focus Areas (EFAs) are taken into account thanks to increasing planting of catch crops, protein crops, and soybeans.

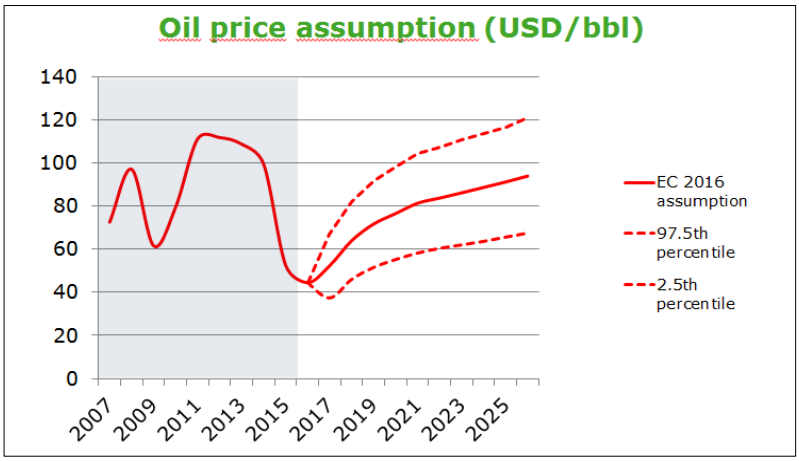


Figure 2: Oil prices in the EU outlook (2016-2026)

Source: Slides of Pierluigi Londero (DG AGRI)

The sharp drop in oil prices since mid-2014 can be attributed to a slowing world demand, record supply increases (e.g., shale oil from North America), and the decision by the Organization of Petroleum Exporting Countries (OPEC) to leave its production target unchanged. In the EU outlook, projected oil prices rebound faster than the respective OECD-FAO and World Bank figures but slower than what the IHS and IEA conclude. After 2021, it is assumed that oil prices will keep rising, albeit at a lower speed. In nominal

terms, oil price per barrel is expected to go up from 44 USD (2016) to about 93 USD (2026), thus underpinning rising commodity prices (Figure 2).

In the current outlook, an appreciation of the EUR/USD exchange rate is expected with a subsequent stabilization at 1.22 USD/EUR by the end of the projection period. GDP growth in the EU is expected to remain stable at 1.6% (EU-15) and 2.8% (EU-N13). China's economic growth is expected to slow down (6%), whereas Brazil and Russia will likely soon recover from recession and stabilize at 3%, slightly above the projected US economic growth.

World population growth is driven by developing countries and particularly Africa (2.5%). Asia will soon account for nearly half of the world's population, and India's population may overtake China's over the next decade. The EU population is projected to grow slowly (0.1% p.a.).

2.2 Presentations by invited experts and discussion

In her presentation, Elisabeth Waelbroeck-Rocha (IHS) laid stress on the fast-evolving macroeconomic environments that complicate projection exercises. While emerging countries were pushing world economic growth to the benefit of advanced economies a few years ago, the picture is now changing: Brazil, Russia, and other emerging economies (e.g., Eastern Europe, Sub-Saharan Africa) show signs of recovery from recession, Asia-Pacific (excl. Japan) approaches remarkable real GDP growth (6% in the medium term), and economic growth in China is slowing down due structural overcapacity and credit imbalances. US economic growth is expected to pick up from 1.5% (2016) to 2.4% (2017), whereas EU growth is assumed first to decelerate (from 1.6% in 2016 to 1.3% in 2017) due to political uncertainties and then recover. This background shapes an expected world GDP growth of 3% p.a. in the coming decade (Figure 3).

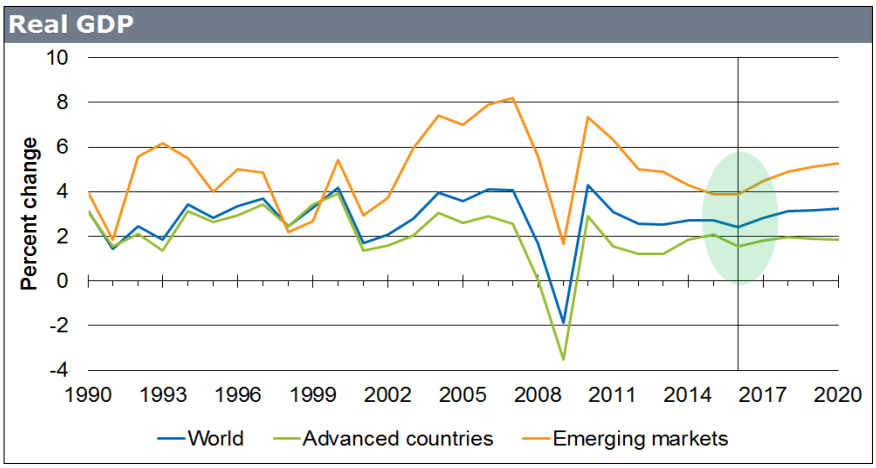


Figure 3: Real GDP growth: advanced vs. emerging economies

Source: Slides of Elisabeth Waelbroeck-Rocha (IHS)

With regard to oil, the modest supply deficit of 2016 will be followed by sporadically rising prices and then production recovery, the latter owing to the key producing regions (Russia, Gulf-5, US). Crude oil prices are projected to reach 80 USD per barrel in 2020. Demand will likely keep increasing despite China's reduced growth. However, it remains to be seen whether upside risks (e.g., unexpected supply disruptions, increasing costs of oil exploration) will prevail over downside risks (e.g., high inventories) and, thus, whether future demand will be accompanied by price increases.

According to Elie Bellevrat (IEA), the links between global economic growth, energy demand, and energy-related emissions seem to weaken: main current energy consumers break the historical link between economic growth and energy demand growth (e.g., EU, US, Japan), others are expected to undergo structural changes in their economies (e.g., China), while all adopt more energy-efficient technologies. Clearly, such structural changes will reshape energy markets. With looming energy security and environmental challenges, international cooperation on energy has never been more vital.

China is projected to transit to a more diversified and less carbon-intensive economy, thus slowing energy-related CO_2 emissions in the medium term. India's energy demand is extremely high and is projected to increase over 1 billion tonnes of oil equivalent by 2040, even though demand per capita remains substantially below the world average. The EU is projected to experience a large reduction in demand that amounts to about 200 million tonnes of oil equivalent (2014-2040). Broad-based growth in global natural gas demand is led by China and the Middle East. By 2040, oil and coal will collectively still represent about 50% of the global energy mix but will lose 9% of the market share. The share of renewable energy will grow by 5%, while gas and nuclear shares will increase by 2% each.

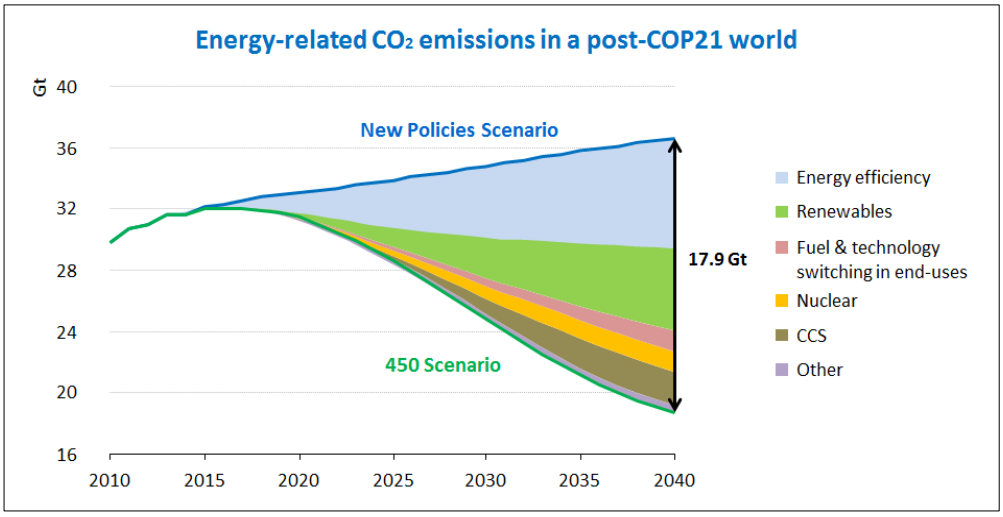


Figure 4: Energy related CO_2 emissions in a post-COP21 world

Note: The New Policies Scenario takes into account energy-related policies and implementing measures that had been adopted as of mid-2015 together with relevant declared (adopted or not) policy intentions. The 450 Scenario depicts a pathway to the 2°C climate goal that can be achieved by fostering technologies that are close to becoming commercially available.

Source: Slides of Elie Bellevrat (IEA)

Being the largest source of global greenhouse gas (GHG) emissions, the energy sector must play a central role in tackling climate change. However, despite the signs that a low-carbon transition is underway, energy-related CO_2 emissions are projected to increase by 2040 (Figure 4). As a consequence, greater efforts in efficiency, renewables, nuclear power, and other low-carbon technologies would be required to achieve a below-2°C pathway. The build-up of renewable energy capacity, deployment of increasingly efficient end-use technologies, and policy initiatives (e.g., fossil fuel subsidy reform in India) are positive signs towards a greener future for the energy sector.

John Baffes (World Bank) discussed two broad points in his presentation: the energy/non-energy commodity price link and the oil price forecasts. These are summarized below.

Previous research suggests that high energy prices lead to an increase in non-energy commodity prices. Based on a time-series analysis (1960-2005) of energy and non-energy prices, Baffes' long-run estimate of the transmission elasticity from energy to agricultural commodity prices equals 0.20; that is, a 100% increase in energy prices is associated with a 20% increase in agricultural commodity prices. He argued that this estimate can still be deemed relevant today because the medium term is likely to resemble the prior-2005 world picture in many respects. For example, biofuel production displayed marginal growth over the last decade and is expected to be less important in the medium term, energy prices are characterized by a tendency of co-movement similar to the one before the 2007-2008 global financial crisis, and the 2014-2015 oil price drop shares similarities with the 1985-1986 oil price crisis (e.g., abandonment of price targeting by OPEC).

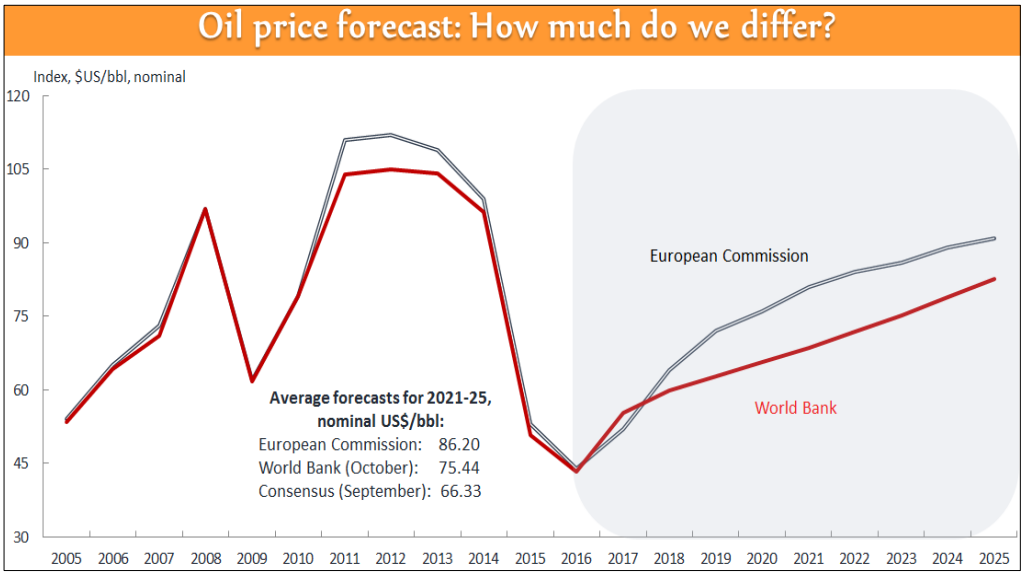


Figure 5: Oil prices in the medium term: World Bank vs. preliminary EU baseline

Source: Slides of John Baffes (World Bank)

Oil prices are expected to average 55 USD per barrel in 2017 thus reflecting OPEC's intention to limit output. Figure 5 shows the difference between the World Bank and the European Commission projections: while both prices initially increase, they diverge after 2017 with an average difference of 9 USD per barrel. Upside risks to the oil price forecast include supply disruptions among key producers (e.g., Russia, Saudi Arabia, US, China, Canada, Iran, Iraq) and unexpected (further) OPEC production cuts. In contrast, greater-than-expected supply may lower oil prices in the medium term.

Following the presentations, the audience questioned the impacts of a systematic devaluation of the Chinese currency. Ms. Waelbroeck-Rocha argued that a continuous RNB devaluation, albeit uncertain, seems rather unlikely because it would lead to larger capital outflows from China and monetary policy reforms in Asian countries. Exchange-rates simulations performed at the IHS showed that if China devaluated, other Asian countries whose currencies are currently floating would tend to devaluate their currencies in response, thus leading to inflation and trade distortions at least in the short term. Therefore, a scenario of competitive devaluations, however uncertain, is not deemed likely.

Another issue raised by the audience was the treatment of the potential exit of the UK from the EU in the 2016-2026 baseline generation process. Mr. Londero clarified that since Brexit has not taken place, the current EU outlook assumes an EU-28 till 2026.

This is not necessarily the case in projections produced by other organizations (e.g., IHS).

The third issue raised was how the amount of methane emissions from oil and gas production compares with that from the dairy sector. Mr. Bellevrat clarified that a special IEA report on this comparison will be released in 2017.

Finally, a participant questioned the treatment of Sustainable Development Goals (SDGs) in the outlook. Mr. Londero clarified that simulations of agricultural, supply, demand, prices, and trade are at the core of the EU agricultural outlook, and thus SDGs are not explicitly modelled.

At the end of the session, participants were asked to answer the following question: 'The USD/EUR exchange rate currently equals 1.1 (20/10/2016). What will the average exchange rate equal in 2026?' The responses of 36 participants are shown in the Figure below.

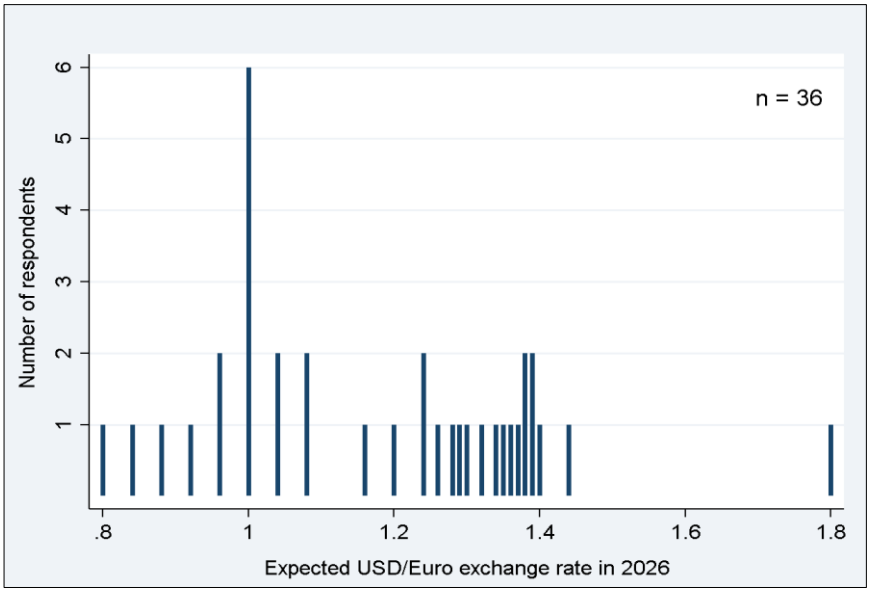


Figure 6: Summary of the participants' answers to the question: 'The USD/EUR exchange rate currently equals 1.1 (20/10/2016). What will the average exchange rate equal in 2026?'

Source: Workshop poll

3 Cereals and oilseeds

The global market for arable crops has been marked by consecutive years of record supply that have led to stock replenishment and declining prices. In this context, projections, possible medium-term developments and scenario analyses were presented by Koen Mondelaers (DG AGRI), Simone Pieralli (JRC), Louisa Follis (Bunge), François Luguenot (InVivo), and Li Ganqiong (CAAS).

3.1 Preliminary EU outlook, 2016-2026

Koen Mondelaers (DG AGRI) presented the EU outlook on crop markets. Utilized agricultural area (UAA) in the EU is expected to decrease at a slower pace than in the previous decade, from 177 million hectares (2016) to 173 million hectares (2026). In absolute terms, the largest decrease is projected for arable crops (2 million hectares) whereas in relative terms for fallow land (14%) and oilseeds (9%), the latter being driven by slowing biofuel demand.

Good consecutive harvests over the last few years built up stocks that pushed prices downwards particularly in 2014 and 2015. Prospects for yield growth over the medium term are more modest than in the past. Higher annual yield growth is foreseen for maize (1.5%), which is mainly used as animal feed, while rice is the only crop for which yield is expected to slip back (-0.09%). Harvested area in the EU is generally projected to decline except for soybean (0.2%), common wheat (0.15%), and maize (0.07%).

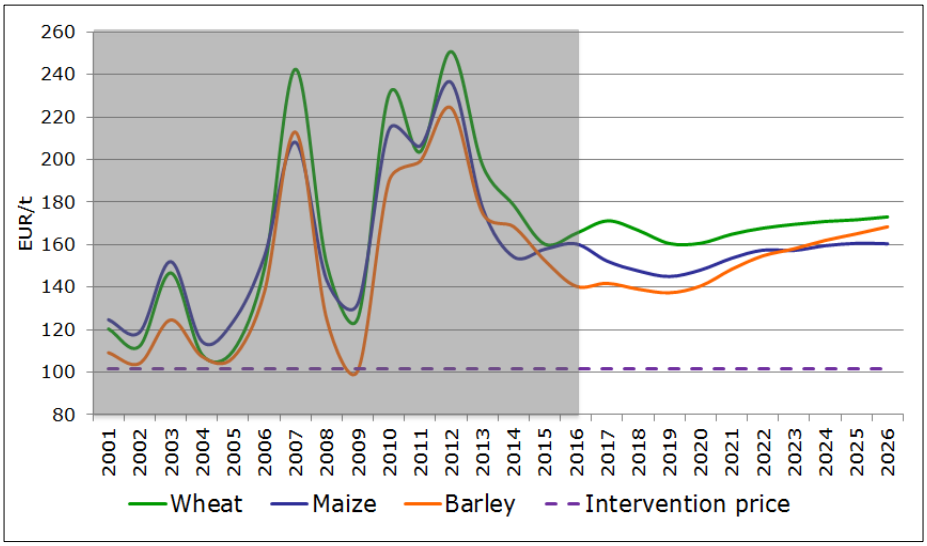


Figure 7: Cereal prices in the EU outlook (2016-2026)

Source: Slides of Koen Mondelaers (DG AGRI)

Cereal prices are currently depressed. Once the record wheat availabilities are absorbed by the market, EU wheat prices are expected to recover faster than the prices of other cereals, clearing at about 172 EUR per tonne in 2026. Barley may suffer a lower demand growth which is, nevertheless, expected to pick up at the end of the projection horizon (Figure 7).

Oil meals will become relatively more important in the EU oilseed complex as domestic meat production is increasing. As a result, soymeal imports will go up by about 3 million tonnes. Given that soybean areas have been granted VCS in several MS and are eligible

for EFA measures, they are expected to stabilize at the expense of rapeseed, which will likely undergo negative area growth.

Oilseed prices are assumed to recover in the medium term mainly due to increasing production costs. A positive difference is expected between the domestic price and the import price of soybean because EU production is free of Genetically Modified Organisms (GMOs). Protein crops are likely to benefit from a dynamic demand for animal feed, VCS, and the eligibility under EFAs. At the end of the projection period, field peas and beans will reach an all-time area peak (over 1.8 million hectares).

3.2 The uncertain effects of the stockpiling policy reform in China: hard- or soft-landing for maize stocks?

Simone Pieralli (JRC) presented a scenario analysis with regarding the Chinese maize stockpiling policy. China has become a big importer of maize in the global market in recent years. In light of supply-side reforms that were implemented on October 1, 2016, China is facing growing pressure to reduce maize inventories and domestic support prices. Maize in China is mainly used for feed (60%), but other coarse grains are also imported for this purpose {e.g., barley, sorghum, cassava, distilled dried grains (DDGs)}.

The EU outlook predicts a smooth decrease of Chinese maize stocks. Two counterfactual scenarios of faster stock decrease down to 48 million tonnes[4] were presented in this analysis: a soft-landing scenario, where maize stocks decrease linearly till 2020, and a hard-landing scenario, where stocks decrease abruptly in 2017 (Figure 8).

In the soft-landing scenario, net trade is consistently negative across years, albeit less negative than in the baseline up to 2020. The Chinese maize price is expected to decline by 10%. EU net trade of maize is positive over the first years.

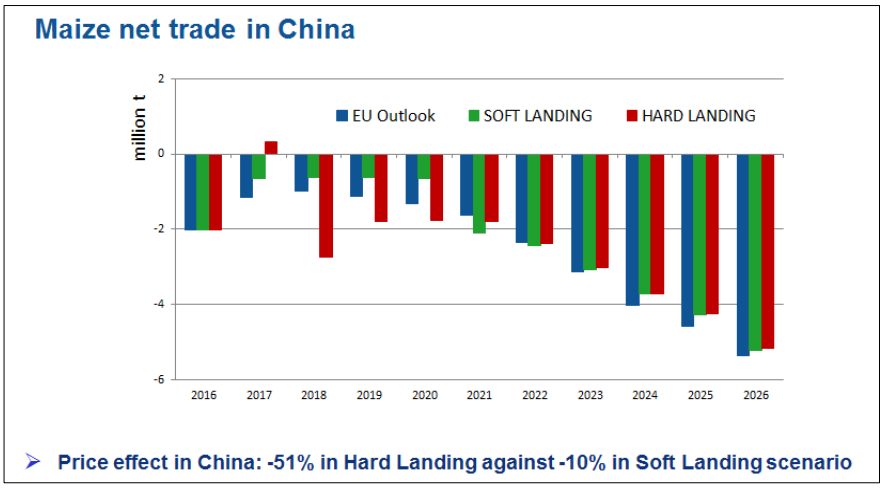


Figure 8: Projected net trade in China: EU baseline vs. maize destocking

Source: Slides of Simone Pieralli, Silvia Kanadani Campos and Ignacio Pérez Domínguez (JRC)

In the hard-landing scenario, there are notable changes. In 2017, China will become a net exporter of maize, with domestic prices decreasing by 51%, world prices dropping by 4%, and world prices of substitutes declining by 3% (barley) and 7% (DDGs). Chinese

[4] In consultation with experts, this stock size was selected to be prepared for any short-term food security crisis.

prices of maize substitutes are projected to decrease more than world prices (5% for barley, 11% for DDGs), whereas EU prices decline modestly (2% for barley, 5% for DDGs). In general, EU trade effects are limited due to the activation of the maize import duty.

Given that maize becomes less competitive, there is an increase in the soybean area up to 4% compared with the EU baseline in 2017 under the hard-landing scenario. As no major changes in yields are evidenced, maize production in the projection period changes proportionally to area.

Overall, soft-landing of Chinese maize stocks would have a less disruptive but more prolonged markets effects than a hard-landing scenario. Given the latter, however, China could return as a (temporary) net exporter of maize. Finally, the short-term price effects on maize substitutes should not be neglected.

3.3 Presentations by invited experts and discussion

According to Louisa Follis (Bunge), whose presentation was based on early-2016 information, overall consumption volumes of wheat, maize, and barley are fairly stable in the EU. The feed demand indicates growth particularly with regard to corn-based DDGs, as a by-product of energy and biofuel policies. Soybean meals remain by far the main source of protein in the feed sector (Figure 9).

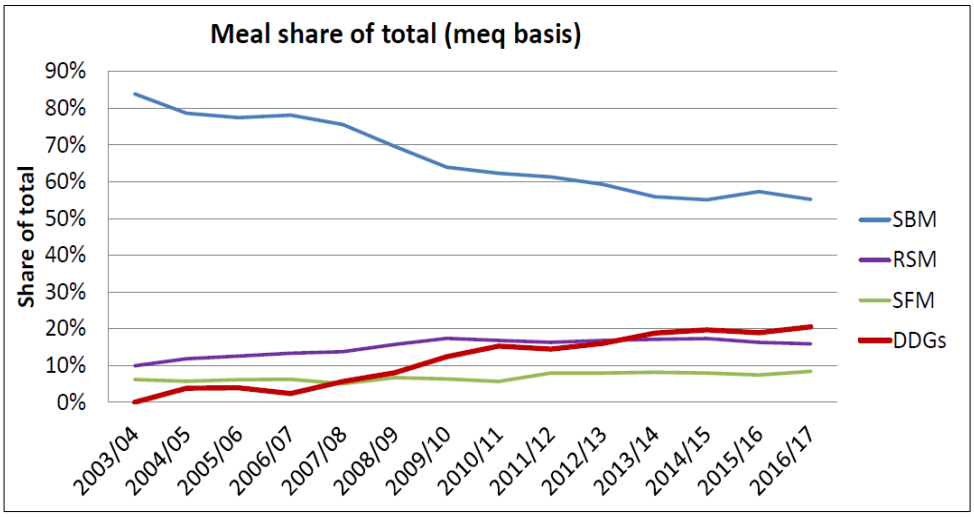


Figure 9: EU protein demand

Note: Estimates are based on early-2016 prices

Source: Slides of Louisa Follis (Bunge)

The Bunge estimates suggest a modest supply growth in 2026 compared with the 2012-2015 average (about 5% for wheat, about 15% for maize, and about 10% for sunflower seed and rapeseed). Yield and area changes are also expected to be fairly small. Wheat shows little change in acreage and yield with the exception of the Danube region. Maize shows a notable increase of about 10% in yield but simultaneously a small area decrease. Sunflower seed and rapeseed show yield gains of about 15% and small area reductions.

Other parts of the world with big growth and high expected output are Eastern Europe and South America. In particular, wheat production is expected to rise in Ukraine and Russia, whereas corn and soybean production is expected to increase in Argentina and

Brazil. The Bunge projections generally foresee higher maize imports into the EU (driven by feed demand) and lower wheat exports compared with the EU figures.

In his speech, François Luguenot (InVivo) highlighted the main drivers of oilseed production: domestic policies, trade policies, and agronomy. The initial purpose of using oilseeds in the EU was as high-protein supplements in livestock production; however, they ended up being driven by the EU biofuels policy (e.g., rapeseed and biodiesel production), whose medium- and long-term future seems questionable by many. Trade policy is important considering the China-US example: driven by rapid economic growth, the Chinese demand has absorbed over 50% of the US soybean exports over the last years driving an expansion of US soybean production. Third, Mr. Luguenot believes that oilseed production does not have a bright future in the EU because it cannot compete with domestic wheat, barley, and maize yields. The picture may be reversed, however, in regions where the yield gap between cereals and oilseeds can be minimized (e.g., Black Sea).

In presenting the main developments on crop markets from the Chinese perspective, Li Ganqiong (CAAS) briefly discussed the macroeconomic environment underlying the Chinese outlook. With an annual GDP growth rate of 6.2% over the next decade, which is about 35% lower than the rate of the previous decade, the Chinese economy will stabilize at 6% by 2025. The total population in China will continue to grow by 0.3% p.a., reaching an estimated 1.42 billion people by 2026. Urbanization will accelerate, and urban population will account for about 60% of the total. As a consequence, agricultural labour force will slightly decrease. The consumer price index will reach 3% by 2025, while RMB exchange rates will stabilize with a slight depreciation.

Against this background, supply and demand for rice and wheat will maintain a basic balance due to governmental legislation on grain security. While rice and wheat growing areas will keep decreasing by 0.3% and 0.1% p.a. respectively, yields are expected to keep improving by up to 0.3%. The undergoing supply-side reform is expected to reduce the sown area of maize (1.8% p.a.) in the next 5 years, oilseed production will recover, and oilseed imports will decrease. Overall, Mr. Li argued that the decreasing maize production and increasing soybean production in China will have limited impacts on the EU cereals and oilseed markets because trade between China and EU boils down mainly to horticultural, meat, and dairy commodities.

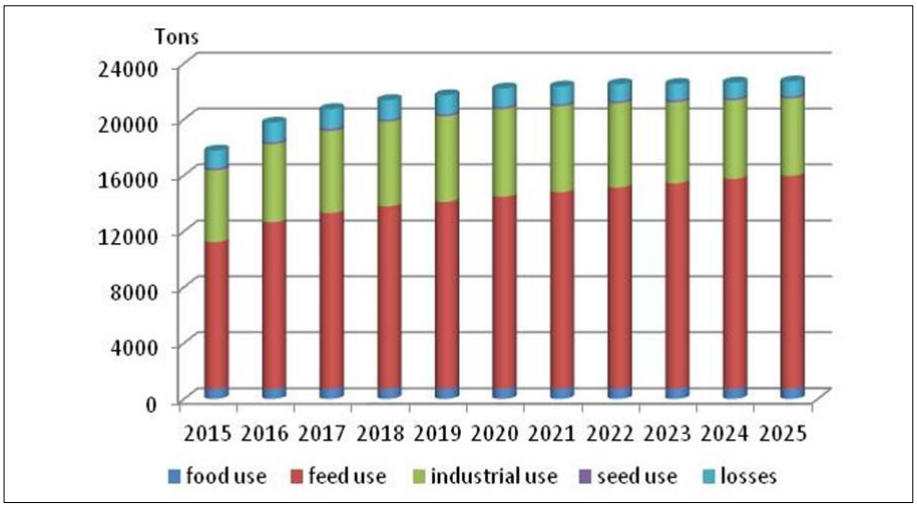


Figure 10: Projected maize consumption in China (Chinese outlook, 2016-2025)

Source: Slides of Li Ganqiong (CAAS)

In the next decade, China will pay more attention to the balanced use of domestic and international resources and markets. The resource-intensive imports of oilseeds, fruits,

meats, and dairy products will expand from the traditional Americas, Australia, and Southeast Asia to Central Asia and the EU.

Following the presentations, questions were raised on the role of crop rotation in the baseline. Crop rotation is important to retain soil organic carbon levels and to make soil more responsive to fertilizer application. Mr. Mondelaers clarified that crop rotation is not taken explicitly into account in the EU outlook due to the global (vs. farm-level) nature of the Aglink-Cosimo model.

Another question raised by the audience was whether, following the liberalization of the EU sugar market, land competition between cereals and sugar beet is taken into account. Mr. Mondelaers explained that area substitution is explicitly modelled, and the area devoted to sugar production is indeed reduced post-quota. Overall, EU crop area allocation in Aglink-Cosimo is driven by the competitiveness of each crop relative to soft wheat.

An issue concurrently discussed was the contribution of extreme weather to yield fluctuation and price volatility. Participants recognized that yield fluctuation due to uncontrollable weather conditions may affect crop production in either direction, possibly even to a greater extent than energy prices or exchange rates. Therefore, projected crop supply and prices should ideally include abrupt changes. The 2003 European heat wave, for example, had a tremendous impact on wheat and maize production in some MS (e.g., France), thus increasing significantly commodity prices in the EU. In essence, extreme weather impacts can be coarsely examined with scenario analysis and through the partial stochastic module. With scenario analysis, yields are typically shocked exogenously and arbitrarily, whereas stochastic analysis allows for random yield variation to be taken into account but without identifying the impacts of extreme weather. In essence, the absence of weather variables from the supply core system of a deterministic economic model leaves weather impacts out of the baseline. Mr. Pieralli explained that ongoing work at JRC will allow us to better investigate the possible impacts of extreme weather events on agricultural markets.

Overall, it was mentioned that it is important to look at prices at the time of planting and harvest. Grain prices may fluctuate all year along but they do so particularly in the beginning and end of the growing season, when supply expectations are heavily dependent on growing conditions. Aglink-Cosimo does not include seasonal price fluctuations; instead, current and lagged prices along with their elasticities drive the supply system.

Finally, the future use of fertilizers in crop production was raised. The projections do not explicitly model fertilizer application, but fertilizer costs are accounted for through the use of a production cost index. The participants agreed that the future use of fertilizers will depend on political decisions and the fertilizer industry.

At the end of the session, participants were asked to answer the following question: ‘EU self-sufficiency in terms of high protein feed currently reaches 33% (expressed in protein content). What will this level be in the coming decade?’ The responses of 24 participants are shown in the Figure below.

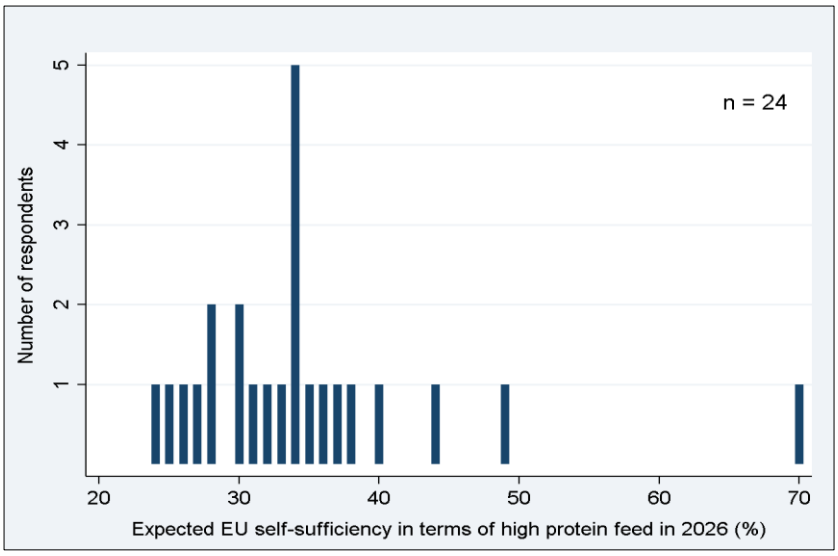


Figure 11: Summary of the participants' answers to the question: 'EU self-sufficiency in terms of high protein feed currently reaches 33% (expressed in protein content). What will this level be in the coming decade?'

Source: Workshop poll

4 Sugar

The EU sugar market is entering a transition period due to the impending expiry of sugar quotas in 2017. The EU projections and possible developments beyond the quota abolition were addressed by Koen Dillen (DG AGRI), Markus Neundörfer (Südzucker), and Timothé Masson (CGB).

4.1 Preliminary EU outlook, 2016-2026

According to Koen Dillen (DG AGRI), strong prices during 2015 and 2016 are driven by a structural shortage in the EU production that has reversed the secular oversupply and stock levels prior to 2015. Against this situation, and the EU price being below than the world price since May 2016, the EU sugar industry is in a position to compete for market shares thanks to longer campaigns and storing and trading capacities. EU sugar production is expected to increase. The abolition of sugar quotas (2017) will happen in a moment where farmers have incentives to continue producing due to low commodity prices for alternative crops, depreciated specialized machinery, and widespread VCS. Moreover, farmers will be willing to sign long-term contracts to ensure the product is rolled out. Sugar prices will follow world prices and will clear at 400 EUR per tonne in 2026, slightly above the world price.

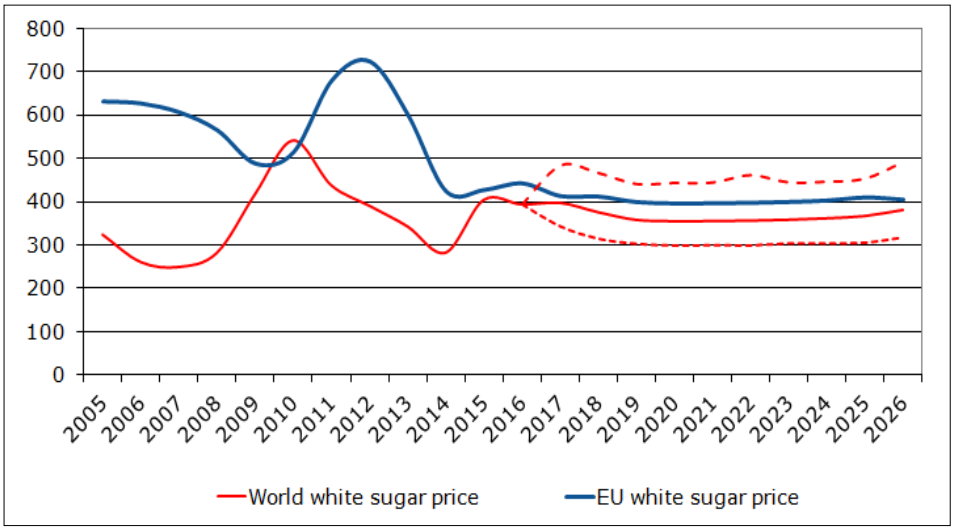


Figure 12: Sugar prices (EUR/tonne) in the EU outlook (2016-2026)
Source: Slides of Koen Dillen (DG AGRI)

Per capita consumption is expected to decrease as the share of isoglucose (i.e., corn-based sweetener) is projected to escalate to unprecedented consumptions levels (9%) following the expiration of the corresponding quota. This will lead to a situation where the EU becomes a net exporter of sugar as the World Trade Organization (WTO) export limits are phasing out.

4.2 Presentations by invited experts and discussion

In the beginning of his presentation, Markus Neundörfer (Südzucker) highlighted the sustainable but also dynamic nature of the sugar sector. Within the existing regulatory framework, the EU sugar industry has managed to steadily increase its productivity in

terms of yield (2.5% p.a.) and production per factory (5% p.a.). For the past 50 years, the regime of quotas and minimum beet prices has secured stable sugar supply from growers and factories to consumers at reasonable prices. The EU and the OECD-FAO foresee that, in the long run, EU sugar production and exports will slightly go up with domestic prices remaining above world prices.

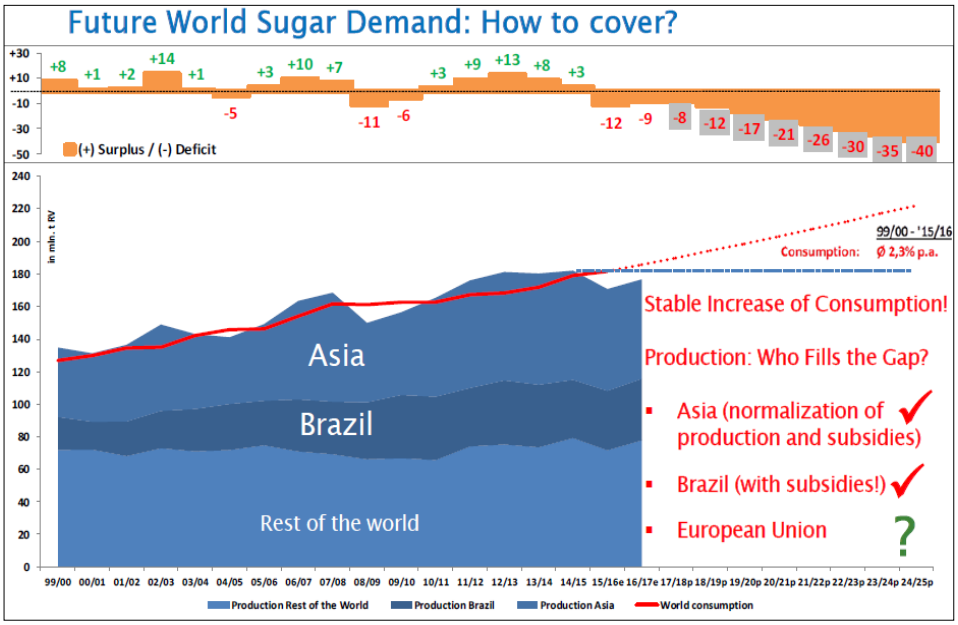


Figure 13: Future world sugar demand

Source: Slides of Markus Neundörfer (Südzucker)

Mr. Neundörfer argued that another scenario pertains to world prices exceeding domestic prices (as it observed recently). In that case, projected imports (exports) based on the current outlook would be overestimated (underestimated). Therefore, the possibility of the EU facing a deficit due to the rising attractiveness of exports (or unattractiveness of imports) should not be neglected. This is to be seen in a context where only a few players seem to have the potential to raise production to cope with the increasing world demand. Former excess demand used to be covered by cane sugar mainly from Brazil. Brazil is a particular case where production costs may exceed world market prices for sugar but, owing to various governmental support measures, the country sets de facto the world price for this commodity. Therefore, Mr. Neundörfer pointed out that a close monitoring of the individual sugar politics in the world is a key topic for policymakers and market participants to provide a level playing field in the future.

Timothé Masson (CGB) began his presentation with remarks on the EU outlook. He expressed doubts regarding the assumptions on the Brazilian Real/USD exchange rate, which drives world prices. Furthermore, he noted that more studies are needed on the drivers of declining sugar consumption in the EU (e.g. sugar for direct consumption, soda, bakery, green chemistry, etc.). He also pointed out that there is still uncertainty regarding the medium-term future of biofuel policies and FTAs. Finally, Brexit would lead to significantly increased imports because the UK owns 25% of the sugar refining capacity of the EU.

Sugar beet yield has increased by 2.4% p.a. during the last decades. Due to regional climate change –mainly realized as warmer springs and summers–, sugar yields have doubled over the last 25 years. The role of genetic engineering is also crucial. Nowadays, seeds account for at least one-third of the variable costs, and low sugar beet prices may lead farmers to reduce these costs, thus impacting yields. Regulating plant protection

products (e.g., neonicotinoids, endocrine disruptors) would increase further production costs. Sugar beet prices are dependent on the sugar. Currently in France, for instance, a sugar price at 404 EUR per tonne represents a sugar beet price of 25.4 EUR per tonne. In order to maintain production at current levels, a sugar price between 450 EUR and 500 EUR would have to be realized, whereas a price beyond 500 EUR per tonne would be a prerequisite for production expansion. Overall, it is very difficult for farmers to remain on the market with prices below 400 EUR per tonne. Mr. Masson concluded his presentation by mentioning that the persistence of the sugar sector will depend on how sugar factories and growers handle risk management.

Following the presentations, participants expanded on Mr. Masson's comment regarding the lack of data on production costs at the MS level. It was pointed out that the unavailability of such data may render the outlook exercise substantially more difficult. Having said that, several publications hint at the location of inefficient factories, and hence we can expect where production will most likely decline post-quota.

Liberalization of the EU market is expected to lead to a stronger integration with the world sugar market and induce greater price volatility. Given the deregulation of the domestic market, participants mentioned the need to implement a safety net to protect farmers from income losses and enable sugar production in the EU to be maintained.

Doubts were raised about the projected net exporting position of the EU in a situation with lower world prices. Mr. Dillen clarified that since the average nature of figures masks variation at more disaggregated levels, not all EU producers will be competitive at world prices. Another participant mentioned that, owing to the production of high-quality sugar, the EU may be able to export sugar even if domestic prices are high.

The end of the quota regime will add volatility to the market and change the fundamentals of the price ratio of sugar beet to sugar. However, it was recognized that due to the fact that sugar beet prices originate from accounting data on sugar prices (i.e., the sugar beet price is not model-based), quantifying sugar beet price volatility is not an easy task.

Some participants highlighted the role of investment funds in determining the current situation of high world prices. In general, investment funds affect to a greater extent short-term outcomes than medium-term outcomes. Future investments in capacity in the sugar industry are observed in Thailand and India but not so much in Brazil. Assuming that banks will not be willing to provide credits, Brazil will likely invest in existing infrastructure that will allow for the production of more sugar (instead of more ethanol).

Considering a world price of around 14 cents per pound, it was argued that it would be very difficult for the EU to compete against Brazil on world markets. However, with investment mainly going to the most efficient sugar refineries and given favourable prices, the picture may change and the EU may be able to fill production gaps on the global market over the next decade.

At the end of the session, it was clarified that the different uses of sugar (e.g., processed food or beverages) are not differentiated in the EU outlook. Therefore, only white sugar that is used domestically or exported is considered. Furthermore, differences between this and last year’s projections (e.g., higher sugar exports in the current outlook) boil down to the assumptions made on the price gap between the EU and world markets; that is, large price differences lead to imports, and small price differences do not exclude exports. Compared with 2015, the price difference between the EU and the world markets is reduced. This reduction is driven by macroeconomic assumptions within the OECD-FAO outlook (e.g., depreciation of the Brazilian Real).

Participants were asked to answer the following question: ‘At a world price of 360 EUR per tonne, how much sugar (in million tonnes) will the EU export in 2020?’ The responses of 25 participants are summarized in the Figure below.

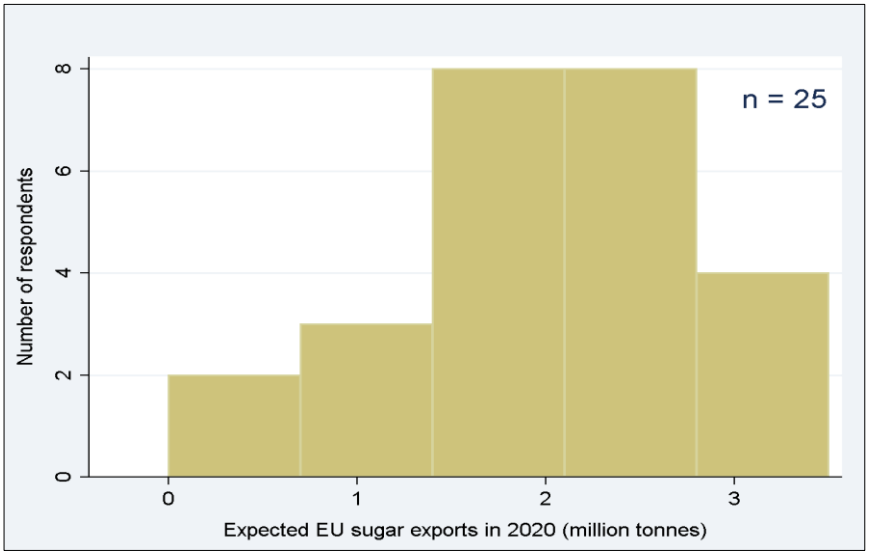


Figure 14: Summary of the participants' answers to the question: 'At a world price of 360 EUR per tonne, how much sugar (in million tonnes) will the EU export in 2020?'

Source: Workshop poll

5 Biofuels

The development of the biofuel market in the EU is relatively recent. It emerged in the early 2000s in order to comply with biofuel consumption mandates defined by EU legislation. The mandates will likely remain a driving force of this market until 2020. The post-2020 period is more uncertain in the absence of clarity on future targets. Against this background, the discussants tried to disentangle the likely medium-term impacts from a policy perspective.

5.1 Preliminary EU outlook, 2016-2026

In presenting the prospects for EU biofuel markets, Koen Dillen (DG AGRI) argued that the current rate of increase in domestic biofuel consumption will not be sufficient to fulfil the mandate of the Renewable Energy Directive (RED) by 2020. Therefore, the baseline scenario assumes a rising consumption of biofuels in the next 4 years, capped at 6.5% of the energy used in transport by 2020 (status quo with respect to the previous outlook).

Accordingly, the share of fuel attributed to first-generation biofuels will be limited to 4.4%, which is far below the recently established EU-level threshold (7%). After 2020, total domestic use of diesel and gasoline is expected to further decrease owing to legislation on energy efficiency in the transport sector. However, much is unknown about the biofuel policy context. Thus, the baseline scenario assumes that EU consumption will remain stable in terms of the share of total energy used for transport after 2020 (Figure 15).

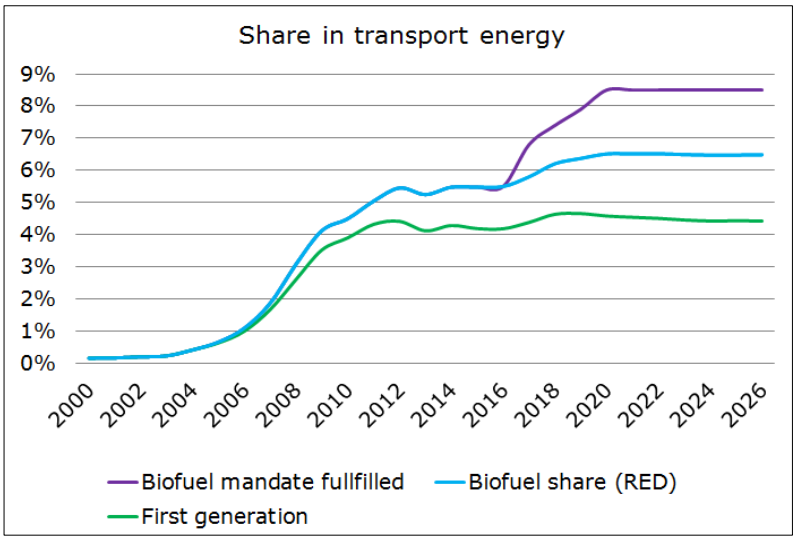


Figure 15: Assumed share of biofuels in EU transport energy

Source: Slides of Koen Dillen (DG AGRI)

Over the 2016-2026 period, the rising ethanol consumption will translate into an intensified use of maize for biofuels. The higher price of raw materials after the quota abolition is expected to trigger a decrease in the share of sugar beet used for ethanol production.

Compared to other biofuel markets, biodiesel (especially from domestic rapeseed) dominates the EU market. The initial increase in biodiesel consumption over the

projection period will be principally sourced from non-agricultural sources, particularly waste oils and second-generation biodiesel.

5.2 EU biofuel policy reform: what are the alternatives for biofuel mandates after 2020?

Biofuels production in the EU has been promoted since the early 2000s based on the Renewable Energy and the Fuel Quality Directives. A part of this legislation gives biofuels a tax exemption and includes mandates ensuring that biofuels should make up at least a fixed share of total annual sales of fuel. In an alternative scenario, the EU biofuel mandates after 2020 are envisaged to be removed and the tax exemption lifted.

According to Silvia Kanadani Campos (JRC), removal of the mandates would lower the volume share of biodiesel in diesel from 7% to about 4.5%. Lifting the tax exemption at the same time would reduce the biodiesel content to 4%. Similarly in the case of ethanol, the initial volume share of 6% would decline to 5% if mandates were removed and to 4.5% if taxes were reintroduced. This would reduce domestic production (consumption) of biodiesel by 33% to 39% (34% to 40%) with smaller reductions in ethanol production (Figure 16).

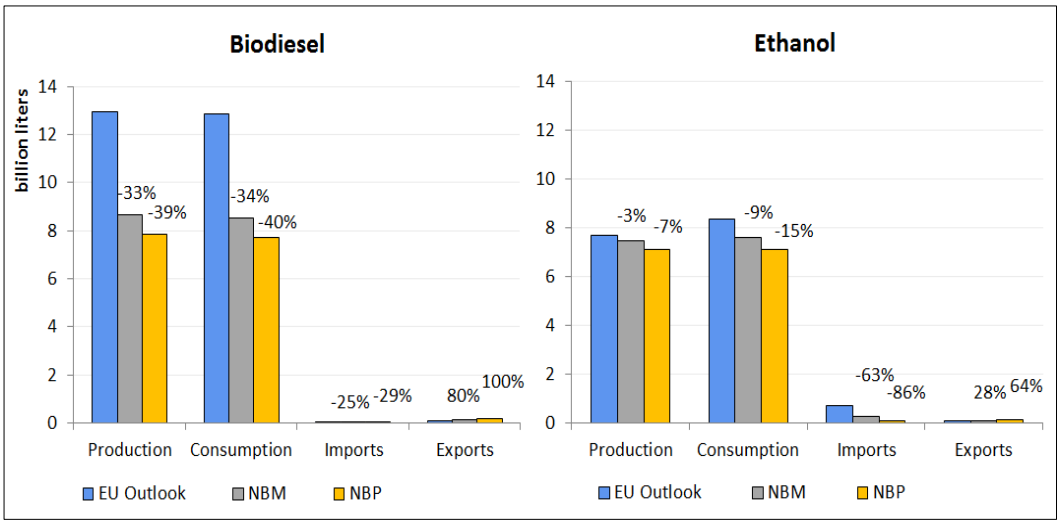


Figure 16: Production and consumption impacts for biodiesel and ethanol

Note: NBM is the 'no biofuel mandate' scenario, and NBP is the 'no biofuel mandate and no biofuel tax exemption' scenario.

Source: Slides of Silvia Kanadani Campos (JRC), Ignacio Pérez Domínguez (JRC), Simone Pieralli (JRC), and Koen Dillen (DG AGRI)

The lower production is caused by a decline in biofuel prices when the mandates and tax exemptions are removed, as the biofuel price has to adjust to the relative fossil fuel price. Biodiesel prices decline by 25% to 30% in the EU, and this decline is transmitted to the vegetable oil sector where prices decline by 15% to 20%. Domestic rapeseed production is expected to decline by 2.5% to 3%. World market prices of biodiesel decline by roughly 2% while vegetable oil prices drop by about 4%. On the ethanol market the 3% to 7% reduction in production represents a price reduction of 12% to 22% in the EU where the abolition of the tax exemption has a relatively larger impact than in the biodiesel industry. The reduced ethanol price has no major influence on the prices or production of feedstock (maize, coarse grains, wheat, sugar beet).

5.3 Presentations by invited experts and discussion

Christophe Cogny (Tallage) believes that the EU biofuel mandate post 2020 is unlikely to be agreed upon at the MS level in the absence of a common goal. National policies prevail with some countries keeping their incentive laws in place. For example, Germany sets its own rulebook towards GHG savings, France sticks to the 7% incorporation target, and Spain should increase mandates moderately (up to 8.5% by 2020). Therefore, the EU biofuel market will likely keep increasing over time (Figure 17). The consequences of low crude oil prices in Germany, for example, resulted in a lower biodiesel share than diesel share (5.4% in 2015 to 5.1% 2016), but higher diesel consumption this year (7%) mitigated the lower share. The higher biodiesel consumption relies on changes in the legal framework with Germany increasing its GHG savings to 4% from 2017.

Consumption (Mtoe)	**2005**	**2010**	**2015**	**2020**	**2021**	**2022**
Gasoline	115,2	97,4	83,3	81,0	79,7	79,3
Bioethanol	0,5	2,7	2,8	3,3	3,3	3,3
Bioethanol content in gasoline	0,5%	2,8%	3,3%	4,0%	4,1%	4,1%
Diesel	183,2	206,4	212,5	217,9	218,6	219,2
Biodiesel	2,3	10,4	10,4	11,6	11,6	11,7
Biodiesel content in diesel	1,2%	5,0%	4,9%	5,3%	5,3%	5,3%
Biofuels content in fossil fuels	**0,9%**	**4,3%**	**4,4%**	**5,0%**	**5,0%**	**5,0%**

Figure 17: Tentative medium-term projections of biofuel consumption

Source: Slides of Christophe Cogny (Tallage)

According to Matthew Stone (PRIMA), the signals sent by the European Commission about the post-2020 period could indicate that the biodiesel sector is going to have the biggest fallout in terms of lost demand and declining production. He pointed out that the EU baseline assumes steady oilseed/vegetable oil demand through 2026 as a biodiesel input. He questioned this assumption given that the post-2020 period is more uncertain in the absence of clarity on future targets.

Mr. Stone also stated that countries are stimulating increased demand for biodiesel as we move towards 2020. For example, Germany is moving towards a 4% GHG reduction next year increasing to a 6% by 2020. This would increase the German biodiesel demand moving forward to 2020. He pointed out that in the post-2020 period, the EU transportation policy has huge CO_2 reduction ambitions taking Germany as an example with a 20% GHG cut in 2030 (Figure 18). A large proportion of this target (12%) is expected to be achieved through reductions in carbon use and increased vehicle efficiency, leaving 6% to 8% cuts to be made by other means. It is questionable how this target will be met if support to first generation biofuel production is removed.

Mr. Stone also pointed out that crop-based biofuels can supply up to 7% of road fuel with GHG savings exceeding 60%, however, with no post-2020 support. He then emphasized that there is only one viable advanced biofuel available, waste oils, which could replace crop-based biofuels in the medium term. However, policy developments in other parts of the world will potentially also impact EU advanced biofuel supply as, for example, aggressive low-carbon mandates in North America would likely impact the availability of wastes assumed in the EU projections towards carbon reduction targets.

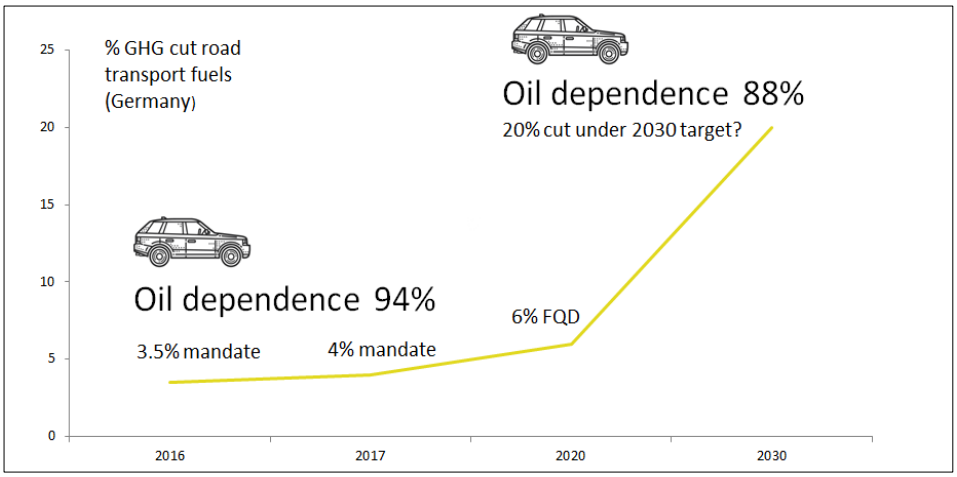


Figure 18: Post-2020 CO_2 ambitions in transport

Source: Slides of Matthew Stone (PRIMA)

Following the presentations, the audience pointed out that the EU baseline projects stable biodiesel production but feedstock changing considerably. Imports of palm oil are expected to slightly increase while EU rapeseed production is reduced. Mr. Dillen argued that there was no major expected change in feedstocks, but when countries are moving to GHG mandates the use of palm oil gives higher GHG savings.

With regard to the EU biofuel reform scenarios, it was questioned whether rapeseed production could be viable in the absence of a biofuel mandate. Some participants expressed their doubts about the development of second generation biofuels.

At the end of the session, participants were asked to answer the following question: 'The EU biofuel share in the transport mix is 5.5% in 2016 (incl. RED). How much will it be in 2020?' The responses of 23 participants are shown in the Figure below.

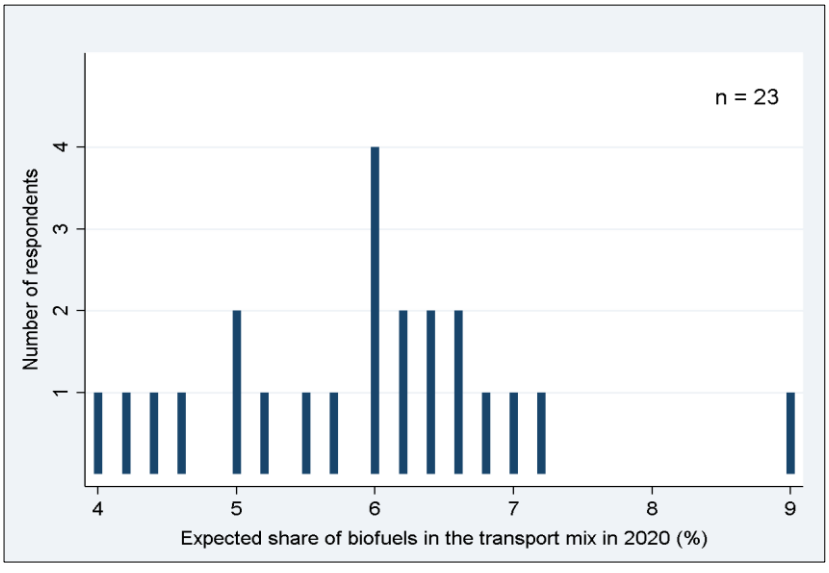


Figure 19: Summary of the participants' answers to the question: 'The EU biofuel share in the transport mix is 5.5% in 2016 (incl. RED). How much will it be in 2020?'

Source: Workshop poll

6 Fruits, vegetables, olive oil and wine

Fruits, vegetables, and permanent crops comprise a new addition to the EU agricultural outlook. The most notable difficulty in developing a robust market outlook for fruits, vegetables, olive oil, and wine pertains to the lack of relevant and comprehensive country-level data. Consequently, the analysis provided in this outlook does not rely on modelling tools but on trend analysis and experts' opinion.

6.1 Preliminary EU outlook, 2016-2026

According to Fabien Santini (DG AGRI), olive oil groves are expected to increase in Spain and Portugal. Annual production follows an upward moving trend in Spain and Portugal, remains stable in Greece, and is slightly declining in Italy (Figure 20). Adverse weather conditions from 2012 to 2014 period have led to a drop in harvested quantities and higher prices. In conjunction with the economic crisis, this has resulted in decreasing per capita consumption in producing MS. On the other hand, consumption follows an increasing trend in the rest of the EU and the world. Exports are generally expected to rise, but some competition with third countries is also foreseen.

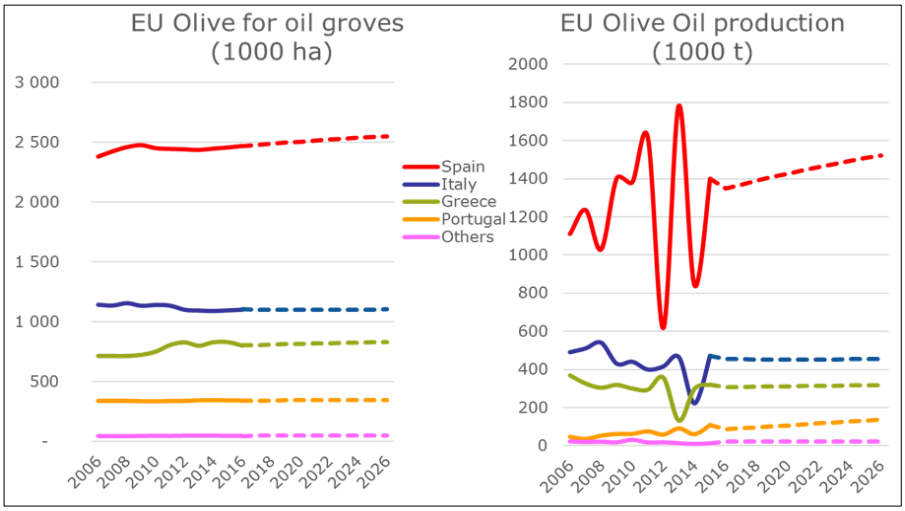


Figure 20: Production of olive oil in the EU

Source: Slides of Fabien Santini (DG AGRI)

With regard to wine, a slight decline in production and consumption is expected resulting in an increase of net exports. Even with stable production prospects, European wine production may vary from year to year due to seasonal weather fluctuation and unfavourable sanitary conditions.

Increasing supply is expected with regard to apples, particularly due to increasing production in Poland. This coincides with a reduction in the consumption of fresh apples thus leading to increased processing and a stronger net exporting position. The quantity of fresh tomatoes produced and consumed is projected to slightly decrease in the EU, with a stable net importing situation.

6.2 Presentations by invited experts

Philippe Binard's (Freshfel) presentation focused on the main factors that determine the development of a market outlook for fruits and vegetables. Fruit and vegetable prices are shaped by multiple factors such as production volume, weather, packaging, freshness, quality, size, certification, and destination, which are difficult to analyse simultaneously. In addition to that, given the diversity and perishability of fresh products, market reports are usually conducted with a considerable time lag. MS data are often incomplete and difficult to access, and official data sources such as Eurostat and FAOSTAT need up to two years to collect and report the relevant market information. Therefore, analysts would have to rely on generic online consultation databases or product-specific seasonal trade reports.

Ad Klaassen (Dutch Produce Association, DPA) presented some interesting facts on tomatoes. He stressed the fact that nowadays many more tomato varieties are offered to the consumer than in the past. This, in conjunction with high price variability due to weather fluctuation, has gradually led to increasing prices. Domestic consumption is overall decreasing, but a shift is observed towards smaller tomatoes. Mr. Klaassen also pointed out that having one price for many types of tomatoes makes it difficult to rigorously monitor the market and implement safeguard changes in trade agreements. Finally, he highlighted the role of interventions by Producer Organizations (POs), which can strengthen the position of producers in the market and their countervailing power upon grouping supply.

Jaime Lillo (International Olive Council) commented on the olive oil projections. He believes that production levels can grow faster than what the baseline figures suggest. In addition to that, holding domestic consumption constant (or decreasing), actual exports may exceed the projected figures. The first argument he provided to support his viewpoint is that the actual total surface of olive groves in 2016 already exceeds the area projected for 2020 in 2012. Second, domestic consumption has been steadily decreasing. And third, there is now evidence that when appropriate agricultural practices are applied, the carbon sink (or sequestration) effect of olive trees through biomass and soil is much greater than the GHG emissions for one production unit. Estimates from the International Olive Council show that for the production of 1 litre of olive oil, a mature semi-intensive orchard with average yield has the potential to fix around 10 kilograms of CO_2 into the soil. Therefore, olive production can serve as a tool that helps tackle global warming.

According to Rafael del Rey (Observatorio Español de los Mercados del Vino, OeMv), the wine sector is and will likely be profitable. Global consumption will remain rather stable, and changes will be observed mainly in the countries where wine is mostly consumed. EU consumption will likely decrease, hence forcing further exports. There are global trends regarding wine consumption in favour of sparkling and fresh easy wines, with a growing polarization between a small segment of premium high quality wines and a large segment of popular ones, where trading in bulk may rise. Trends in world consumption and trade will affect production in terms of both surface of vineyards and yields; the former will likely decline whereas the latter will probably go up. Profitability of producers will depend on the equilibrium between supply and demand (normally reached in the medium term with some imbalances in the short run) as well as on the level of vertical integration towards a better global distribution.

The EU has a predominant place in the global wine markets despite being challenged by many countries with efficient companies. EU production and area have decreased. Domestic consumption has also decreased, from about 150 (2000-2004) to about 127 million hectolitres (2011-2015). Soon the EU will likely no longer be the largest wine consumer in the world, although consumption will remain relatively stable and its influence in culture and gastronomy will remain. This is because world wine imports increase rapidly, particularly in Asia, North America, and Eastern Europe. In general, EU

demand is driven mainly by lighter wines, whereas large amounts of relatively cheap still wine will be increasingly devoted to exports.

At the end of the session, participants were asked to answer the following question: 'What share of the EU wine production will France, Italy, and Spain represent in 2026 (2010-2014 average: 80.5%)?' The responses of 31 participants are shown in the Figure below.

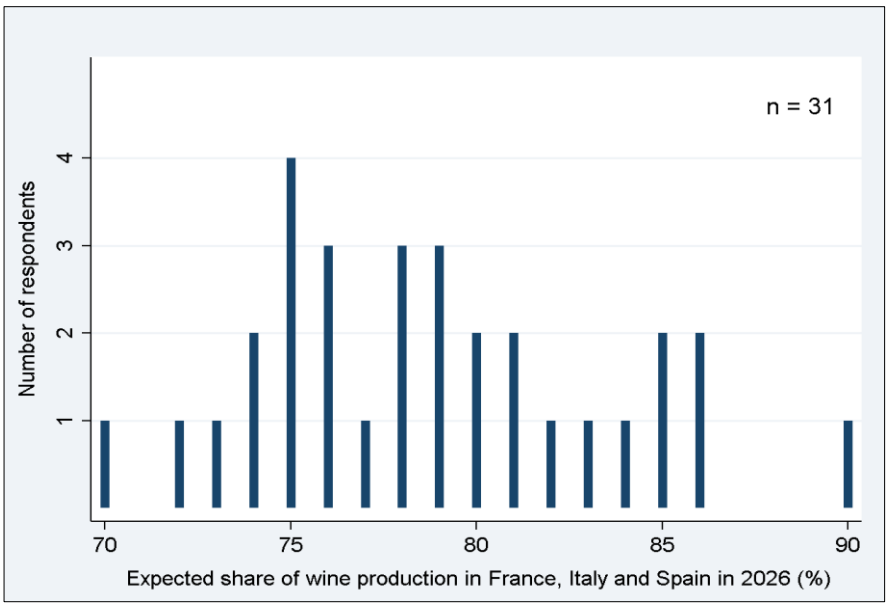


Figure 21: Summary of the participants' answers to the question: 'What share of the EU wine production will France, Italy, and Spain represent in 2026 (2010-2014 average: 80.5%)?'

Source: Workshop poll

7 Milk and dairy

The preliminary EU projections of the EU milk and dairy markets were presented by Sophie Hélaine (DG AGRI). Roel Jongeneel (AGMEMOD consortium) presented some MS-related results, whereas Jack Baines (Eucolait), Francis Reid (Fonterra), and Patty Clayton (AHDB) commented on the EU outlook and presented further details regarding observed and expected developments on the milk and dairy markets.

7.1 Preliminary EU outlook, 2016-2026

Sophie Hélaine (DG AGRI) presented the preliminary outlook for EU milk and dairy markets. She first made reference to the recent turbulences in the world dairy markets, which were especially marked by the Russian import ban and the decrease in Chinese import demand on the one hand, and by a strong increase in world production on the other hand. The latter is somewhat debited to the increase in EU milk production due to higher prices and the quota abolition. During the last months, EU dairy prices started to recover along the recent decrease in domestic milk supply.

For the next decade, the preliminary outlook indicates a lower but steady growth in world milk production (1.8% p.a.). The production increase will be driven both by exports and domestic demand. The growth in world consumption will be approximately 16 million tonnes of milk annually with on average 1 million tonnes of milk equivalents {skimmed milk powder (SMP), whey milk powder (WMP), cheese, butter} traded additionally per year. This projection implies a lower increase in traded volumes compared with those of the last decade. While China is expected to contribute less to the extra demand, African imports may further increase (Figure 22). The extra demand on the world market is expected to be supplied to a greater extent by the EU than New Zealand.

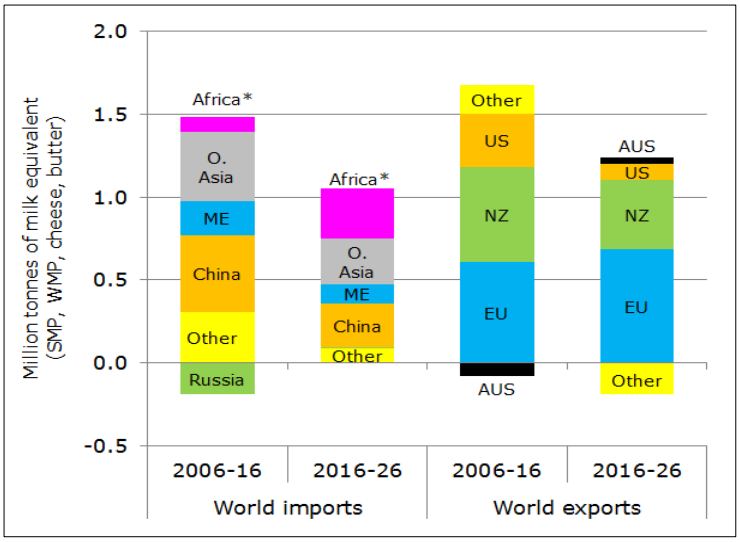


Figure 22: Annual change in world trade of dairy products

Source: Slides of Sophie Hélaine (DG AGRI)

EU milk production is projected to increase to 177 million tonnes, with milk deliveries of 168 million tonnes. The EU-28 annual growth rate in milk deliveries is expected to be 0.9%. The higher growth rate in EU-N13 (1.2%) will be debited to the continuing restructuring process and an increase of the share of milk delivered to dairies. EU milk

yield is projected to steadily rise, whereas cow numbers will come back to the declining trend. Over the next decade, EU milk production is projected to rise by 13 million tonnes, domestic use and exports by 8 million tonnes each, whereas stocks may be reduced by 3 million tonnes.

The EU raw milk price is expected to be under pressure in the short run and will likely stay below 35 EUR per 100 kilograms for most of the projection period; notwithstanding, volatility around this price is to be expected. SMP was pointed out as one of the culprits for the price pressure, as there are currently high levels of stocks that will be released over the next years.

Per capita consumption of fresh dairy products is expected to decrease in EU-15; in EU-N13 it will remain rather stable but lower than the EU-15 level. At the same time, EU per capita consumption of cheese and butter is likely to increase.

7.2 Dairy market development at the MS level

Roel Jongeneel (Wageningen Economic Research, and member of the AGMEMOD consortium) presented selected MS results based on the AGMEMOD model[5]. An increase in total EU milk supply of 14 million tonnes (9%) is projected for the period 2016-2026, with approximately 75% of it being realized by five MS (Germany, Ireland, UK, France, the Netherlands) (Figure 23). It is notable that Ireland is expected to experience the biggest growth in milk supply (41%), and that in Poland and the Czech Republic the percentage increase in deliveries is higher than that in production, indicating the aforementioned restructuring process.

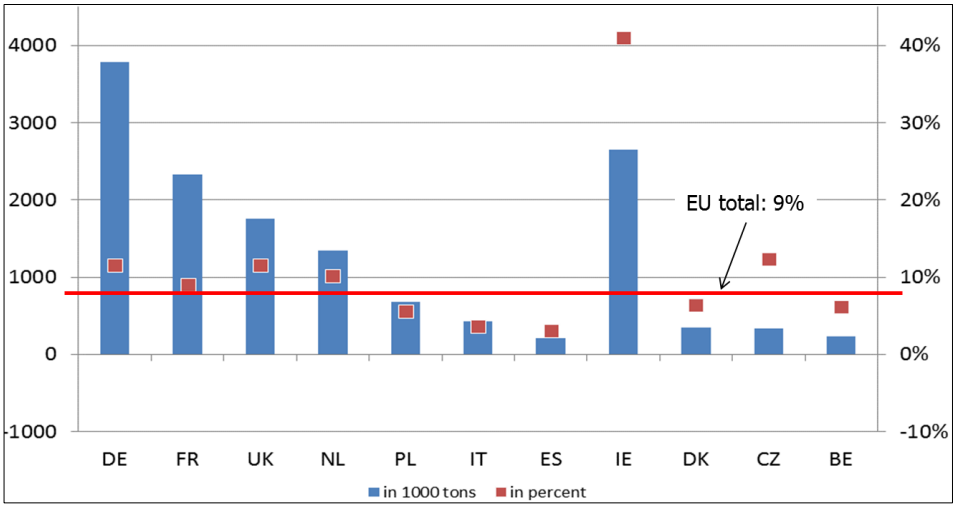


Figure 23: Increase in milk production (2016-2026)

Source: Slides of Roel Jongeneel et al. (Wageningen Economic Research, and member of the AGMEMOD consortium)

Regarding the characteristics of milk production at the MS level, Jongeneel argued that a general resumption in the herd decline is expected in all MS but Ireland. With respect to the competiveness of milk production, MS that expanded production during the low price situation in 2015-2016 (e.g., Ireland, the Netherlands) are expected to show a good

[5] AGMEMOD (AGricultural MEmber states MODelling) is a partial equilibrium model that simulates net trade within the EU (intra-EU trade included but not represented bilaterally), backed by MS and collaborations with policymakers, market experts, and national data agencies.

performance over the next decade. However, environmental constraints may become an issue in many regions such as Ireland, the Netherlands, Denmark, and some German and French areas.

Looking at the characteristics of dairy product consumption, income and population growth evidently also impact the MS consumption levels. Notwithstanding, there are diverging trends between the MS regarding per capita consumption of dairy products. For example, the decrease in drinking milk consumption at the EU level will not be uniformly reflected at the MS level, with respective decreases in France, the Netherlands and Spain, but an increase in Poland and rather stable trends in other MS. Significant increases in per capita cheese consumption are expected in Eastern Europe (e.g., Poland, Czech Republic).

7.3 Presentations by invited experts and discussion

Jack Baines (Eucolait) first commented on the EU outlook results and then presented his expectations regarding future dairy market developments, focusing on the EU export possibilities by 2026 and highlighting the most promising markets (in relation to global demand). Putting the preliminary EU outlook into perspective, Mr. Baines commented that with respect to dairy exports the prospects basically imply that the EU would need to find an additional buyer for its exports in the size of Russia (pre-import ban); in other words, for most of the dairy products the EU would have to find new or increasing markets equal to the current five biggest export destination countries. Realizing additional export markets will certainly be a real challenge. For example, the EU is already the number one cheese exporter, and when looking at the EU projections it is debatable whether EU cheese exports really can grow at a faster rate than that of the past decade (3.2% vs. 3.1% p.a.). On the other hand, Mr. Baines also pointed out that the world cheese market grows indeed at a steady rate (e.g., cheese for processed foodstuff). SMP demand also provides a positive and promising picture due to the increasing use of SMP in the food industry (for chocolate, baby food, fresh dairy, processed cheese, biscuits, etc.). The past development of EU SMP exports is quite impressive, as in 2015 it was almost four times higher than in 2008. China, ASEAN, and MENA are the main destinations for SMP and their demand is expected to grow further. With respect to whey powder, Mr. Baines emphasized that import demand is actually further growing. So far most of it is provided by the EU and the US, and it is not clear to him why in the preliminary EU outlook a slowing growth of the EU whey powder exports is expected.

Mr. Baines highlighted the increased concentration of exporting countries within the global dairy market, where between 2008 and 2015 especially New Zealand, the EU-28 and the USA gained market share. At the same time, the market is getting more and more fragmented on the destination side as the number of net importers is increasing. This trend is expected to continue. In the future, main growth vectors of global dairy demand will be *(i)* the increasing world population (especially in Africa and Asia) with an estimated 9 billion people in 2050 leading to increasing demand for food (50% by 2050); *(ii)* the combination of higher income (growing middle class), growing urbanization, changing consumption habits, and development of modern retail and food service will lead to higher dairy consumption; *(iii)* global trade will likely continue to increase faster than consumption as major growth regions (South-East Asia, MENA, and Sub-Saharan Africa) will become increasingly import-dependent. Overall, a global demand increase for dairy products of approximately 2.3% p.a. may be expected. Promising dairy export markets are depicted in Figure 24.

Figure 24: Dynamics of main EU dairy export markets

Note: Images in order of appearance (from top left to bottom right): growing population; growing middle class; net imports; increasing popularity of western culinary/consumption habits; shift from imports of basic dairy commodities to value added (processed) products; uncertainty over future market access for EU dairy vs. other trade blocks (EU perspective); successfully implemented FTAs (EU perspective); lower import potential due to decreasing purchasing power; trade barriers hampering trade (EU perspective); political dispute(s) hampering trade (EU perspective).

Source: Slides of Jack Baines (Eucolait)

In summarizing his presentation, Mr. Baines highlighted again that the EU dairy market balance is reliant on exports. Therefore, market access will be crucial, albeit it is be questionable whether the respective market access will be granted. Ultimately, the share of EU exports in global trade will also be determined by the progress of FTA negotiations.

Francis Reid (Fonterra) commented on the preliminary outlook results, and presented then his expectations regarding future developments in the international dairy markets and their consequences for the main producing/exporting countries. Mr. Reid expects lower average prices for most dairy products than shown in the preliminary projections unless supply responses to improved market conditions are moderated. Accordingly, he pointed out that it is debatable whether the EU-world price gap for cheese and butter would remain if the EU exported an increasing share of production (without export subsidies). Regarding the growth of EU milk production, Mr. Reid questioned the preliminary outlook as it is not clear to him why the annual growth should be lower (0.8% in 2016-2026, 1% in 2006-2016), given that in the latter period EU milk production was constraint by quotas. The projected annual SMP export growth of 5% may seem high, but it is still lower than the growth rate observed during 2006-2016. Nonetheless, concerns remain on what might happen to the EU (price) projections if the expected SMP export growth does not eventuate. The 2.4% annual production growth for WMP seems rather too high (compared to 1.9% for SMP) given the strengthening demand for butter. Conversely, Mr. Reid also pointed out that the projected annual whey growth of 1.4% might be too low considering the strong demand for nutritional products.

Regarding general developments in the international dairy markets, Mr. Reid emphasized that global dairy commodity prices have begun to recover from a prolonged period of low prices. This recovery can be attributed to a slowdown in production across the key export regions. The EU, the US, New Zealand, and Australia account for around 70% of global exports. Typically, global trade has comfortably absorbed the growth of 3 to 4 billion litres from these countries. More recently, growth has surpassed this number. Mr. Reid pointed out that especially China imports continue to grow. However, a radical shift in China to UHT milk has been observed, which was not expected (Figure 25). Economics are likely to limit the rate of growth in China's domestic milk production, and therefore China may continue to create opportunities for growth in imported dairy products.

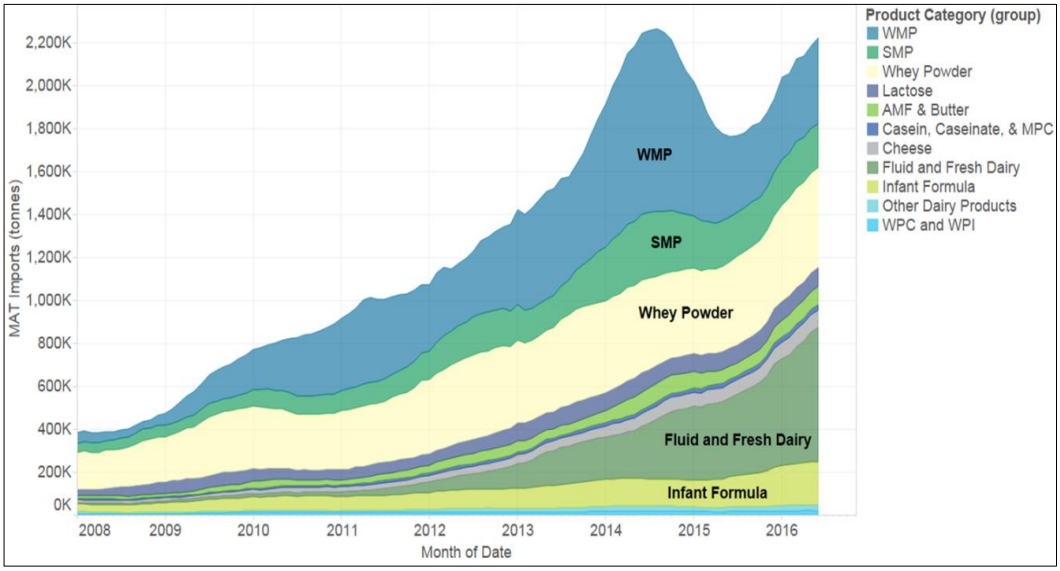


Figure 25: Imports of dairy products in China

Source: Slides of Francis Reid (Fonterra)

Mr. Reid concluded that for the prospects of milk and dairy markets concerns remain around world GDP growth and its impact on dairy consumption. Nonetheless, the general consensus seems to remain that global dairy consumption growth will be at or just below 2% p.a. Milk production growth currently continues to slow down as farm economics put pressure on growth, but the market is still finding balance following the removal of EU milk quotas. In the medium term, the issue will be if farm economics will indeed lead to a balance with production and consumption at or slightly above 2% p.a. Volatility in milk and dairy prices may become the norm.

Patty Clayton (AHDB) concluded the panel presentations in presenting her expectations regarding the future developments in the European milk and dairy markets, and providing some insights on the experience of the UK with POs and aligned contracts. As a general comment, Mr. Clayton briefly highlighted that the global demand growth for dairy products may continue to increase, but there may be a shift in where the demand will come from. Most growth may be seen in developing countries where population is the key driver, implying growth in SMP demand. At the same time there will also be an increasing demand for higher value products such as cheese and butter, primarily due to changing preferences driven by increasing middle classes. The global demand growth in higher value products may favour the EU dairy industry, as there is processing capacity in those segments (but also in powder) due to the complementarity in production and recent investments. Notwithstanding, looking at the decrease in EU farm profits (or increase in farm debts), the capability to expand EU milk production may be somewhat inhibited in the short-term; that is, the ability to take advantage of the global demand increase will depend on how quickly the EU farm sector can recover, especially compared with the farm sectors in New Zealand and the US.

Focusing on the experience of the UK with POs, Ms. Clayton explained that there is currently only one official dairy PO, which was established in May 2015 with formal legal powers to negotiate on behalf of its members. It is actually a previously membership organization with paid representatives working on behalf of farmers supplying a processors. There is also one potential additional dairy PO that is now attempting to formalize an informal group of suppliers. Regarding aligned contracts, there are currently four retailers that operate aligned milk pools. The dedicated pools of farmers receive a milk price based on a formula that takes cost of production, cost and market indicators,

and a basket of other prices into account. The producer prices adjust on a quarterly or six-monthly basis, and the manufacturers act as 'toll processors'. Figure 26 shows that the dairy PO prices paid according to the above mentioned formula stay above the average prices across all contracts. Furthermore, it can be observed that farmers on aligned contracts are more likely to increase production and invest in their farm businesses than farmers on other contracts.

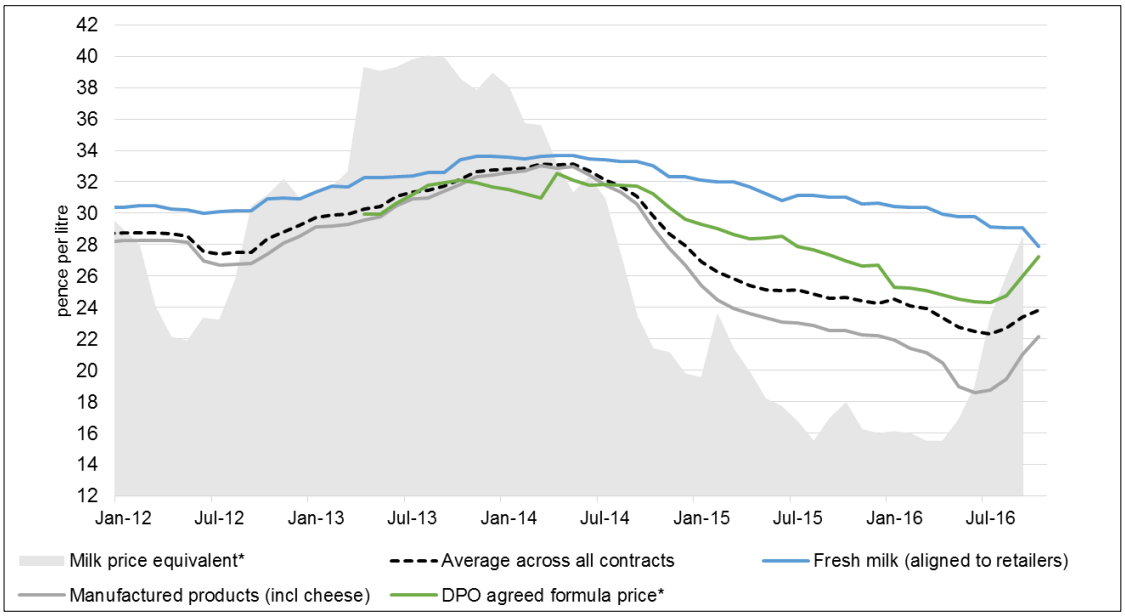


Figure 26: Farm-gate prices in Great Britain by contract type

Source: Slides of Patty Clayton (AHDB)

In the discussion, comments were made on whether the projected increase in EU yields is too high. Increasing yields can be attributed to improved farm management and animal breeding. Participants mentioned that this trend can continue because improvements in animal breeding as well as farm management do not require heavy capital investment. However, yields in France may continue to grow but at a slower pace than in the past. A possible reason for this is the gradual shift to organic farming which produces lower yield per cow. In the Netherlands, the opinion was expressed that higher yields are to be expected due to environmental regulations and the pressure to decrease the number of cows. Ireland, on the other hand, has relatively low yields compared with other MS because cows are mainly grazing, therefore production increase will imply a larger herd.

Russia used to be the first destination of EU dairy exports. Following the Russian import ban, which is believed to have been a major blow for the EU sector, some participants expect that China's import demand will remain the key determinant of future prices even if its internal market grows slow. Some rhetorical questions that were raised are whether the dependence on Chinese import demand is temporary or sustainable, unavoidable, desirable (as sanitary and health requirements create barriers that hamper EU exports to China, whose national standards differ from international standards), and whether the EU can compete with New Zealand *('If they could increase their export volume given land constraints, so can our efficient producers'*).

Commenting on the large projected increase of EU exports to Africa, one participant emphasized again that based on FAO data, this increase refers mainly to milk powder and is driven by population growth and income effects.

With respect to the projected increase in EU milk production, the question was raised on how famers may be able to invest in an environment of low and volatile milk prices. As an answer it was stated that milk production has expanded in the EU despite recent turbulences, which is attributable to past and ongoing structural change. Furthermore it was underlined that increases in production through improvements in animal breeding actually do not require strong capital investment.

At the end of the session, participants were asked to answer the following question: 'In 2016, per capita consumption of cheese in the EU is estimated at 18.2 kilograms. What will it be in 2026?' The responses of 37 participants are shown in the Figure below.

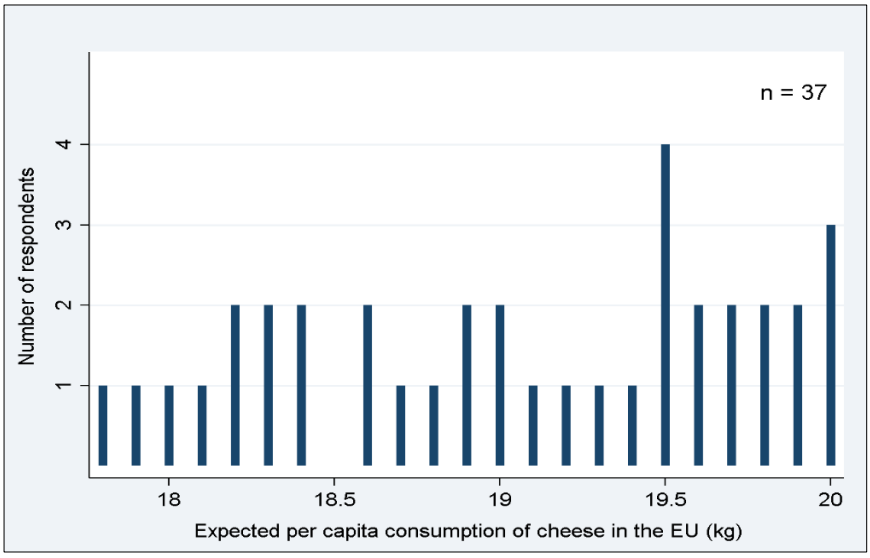


Figure 27: Summary of the participants' answers to the question: 'In 2016, per capita consumption of cheese in the EU is estimated at 18.2 kilograms. What will it be in 2026?'

Source: Workshop poll

8 Meat

Projections with regard to the development of meat markets consider the complex interrelationship between different types of meat, feed, and the environment. Benjamin Van Doorslaer (DG AGRI) presented the preliminary results of the EU meat market outlook 2016-2026, and Ignacio Pérez Domínguez (JRC) presented a scenario analysis to highlight aspects of an inclusion of the agricultural sector into the EU Climate Policy Framework for 2030. Philippe Chotteau (Institut de l'Elevage) discussed the preliminary EU projections and possible further developments with regard to beef, Pablo Bernardos Hernández (Spanish Ministry of Agriculture, MAGRAMA) with respect to pork meat, and Christian Renault (AND International) discussed developments on the poultry market.

8.1 Preliminary EU outlook, 2016-2026

According to the preliminary EU meat market outlook 2016-2026, presented by Benjamin Van Doorslaer (DG AGRI), global consumption of meat is expected to annually grow by 1.3% over the next decade. World imports are growing even faster (2%) owing to rising import demand in Sub-Saharan Africa (poultry and pigmeat), Middle East (poultry and beef), China (pigmeat and beef), and Vietnam (poultry and beef). The outlook foresees a slight rise in per capita annual consumption of meat in the EU (0.1% in EU-15, 0.4% in EU-N13) mainly driven by increasing demand for pigmeat and poultry in EU-N13. Domestic demand for beef and veal has followed a decreasing trend, whereas demand for sheep and goat meat remains relatively stable.

Being a record year in terms of meat production in the EU, 2016 marks a high starting point for simulating the medium term. This means that 2016 is actually a high point of reference for the outlook comparison and might let some of the meat projections seem rather a bit low.

Pigmeat production is projected to slightly go up due to slowing demand, competition on the world market, and environmental concerns. As domestic consumption is increasing only marginally, production surpluses will be destined for export, which will also benefit from the end of the Russian ban. Pigmeat exports in 2016 are already high due to rising Chinese demand.

An increase in domestic production is projected for poultry (0.6% p.a.) which is generally absorbed by increasing domestic consumption as well as increasing exports. Domestic beef production is expected to generally follow the decrease in the dairy herd, but consumption is also decreasing. The EU will become a net importer again as exports to Turkey will likely not continue in the medium term, while imports face tariff-rate quotas. After years of decline, sheep and goat meat production shows signs of increase (0.3% p.a.) and then stabilization.

Competition on international markets for beef, sheep, and poultry drives prices to low levels in the short run but they are all expected to recover around 2020. At the end of the projection horizon, producer prices are expected to clear at the levels of 1,732 EUR (poultry), 1,672 EUR (pigmeat), 4,002 EUR (beef) and 5,098 EUR (sheep) per tonne, respectively (Figure 28).

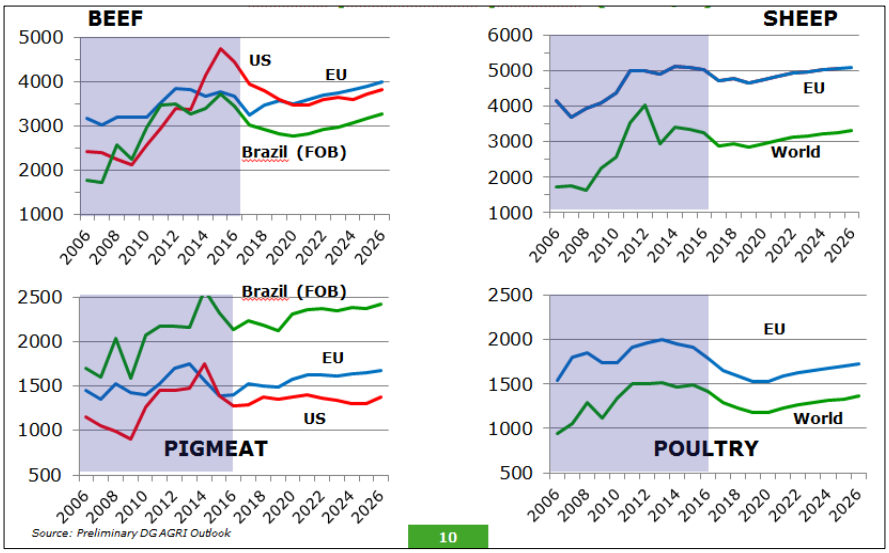


Figure 28: Meat prices in the preliminary EU outlook (2016-2026)

Source: Slides of Benjamin Van Doorslaer (DG AGRI)

8.2 GHG emission reduction targets in agriculture: how could EU meat markets be affected?

Ignacio Pérez Domínguez (JRC) presented selected scenario results of the project 'Economic Assessment of GHG mitigation policy options for EU agriculture (EcAMPA)'. One of the objectives of the project is to assess possible market effects and costs of an inclusion of the agricultural sector into the EU 2030 policy framework for climate and energy. The study shows that the setting of GHG emission reduction obligations for the EU agriculture sector might especially affect production in the EU livestock sector. In his presentation, Mr. Pérez Domínguez focused on two scenarios and their effect on the EU meat sector[6]. The main assumption in both scenarios is a compulsory 15% mitigation target for EU agriculture, with heterogeneous emission reduction targets allocated to MS following a cost-effective distribution. One scenario was run without subsidies and the other scenario with subsidies for adopting certain technical and management-based mitigation options related to both livestock and crop production.

Results of the two scenarios show that effects on ruminant meats would generally be more pronounced than for other livestock products. However, when subsidies are paid for the uptake of mitigation technologies, the impacts on EU production are significantly diminished. Beef meat production, for example, declines by 1.7% in the scenario with subsidies and 5.1% in the scenario without subsidies. Moreover, as a major part of the mitigation obligations would generally be achieved by the application of technological mitigation options instead of reduced animal herds and production, pigmeat and poultry meat production even show an increase, of 1.6% and 0.7% respectively, in the subsidy scenario. However, in both scenarios, production impacts can vary quite significantly at the regional level. The effects on the EU beef market balances per scenario are depicted in Figure 29.

[6] For the entire report, including background information and results of all scenarios see: Pérez Domínguez, I., Fellmann, T., Weiss, F., Witzke, P., Barreiro-Hurlé, J., Himics, M., Jansson, T., Salputra, G., Leip, A. (2016): An economic assessment of GHG mitigation policy options for EU agriculture (EcAMPA II). JRC Science for Policy Report, EUR27973 EN, doi:10.2791/843461.

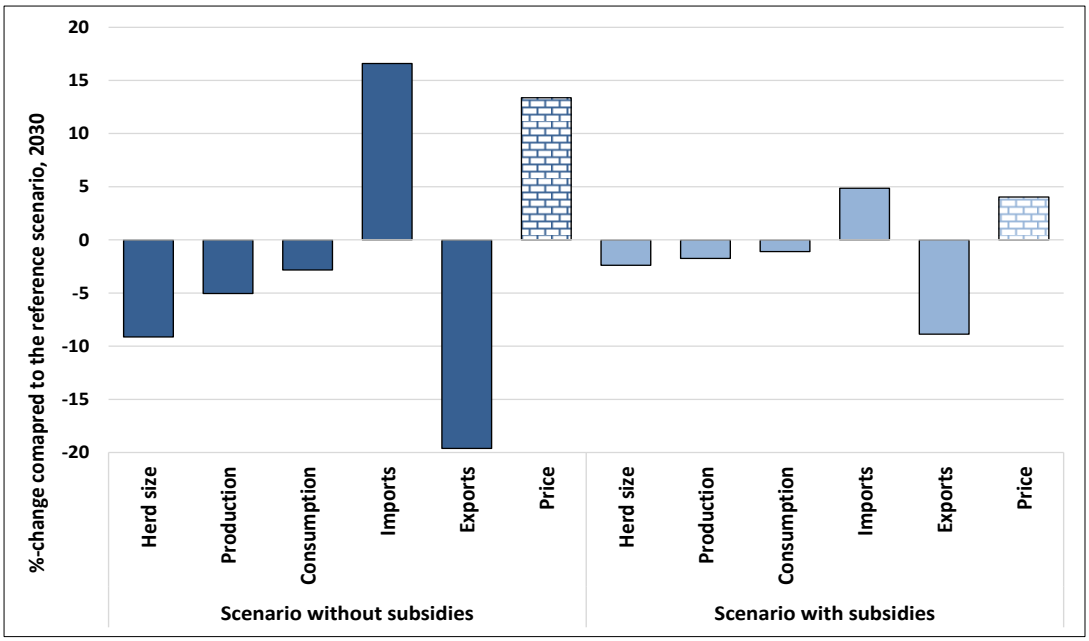


Figure 29: Effects on the EU beef market balance and prices per scenario

Source: Slides of Ignacio Pérez Domínguez and Thomas Fellmann (JRC)

Mr. Pérez Domínguez further outlined that the decreases in domestic EU production would be partially offset by increased imports, which could lead to emission leakage (i.e., an increase in GHG emissions in other parts of the world through trade effects). However, when the application of mitigation technologies is subsidized, EU GHG emission reduction to 85% is achieved via technologies, thus resulting in lower impacts on domestic production and trade (which also reduces the rate of emission leakage considerably). A key conclusion of this study is that GHG emission reduction obligations for the EU agriculture sector could provoke important (negative) production effects in the EU livestock sector if no additional support is given to farmers. The adverse effects on EU agricultural production (and emission leakage) would be significantly reduced if subsidies for the application of mitigation technologies were implemented. However, this may also come with considerable budgetary costs for the EU. As a general caveat of the study, the limited set of mitigation technologies considered was pointed out, and further research and development regarding their potential and adoption by farmers would be needed to improve the analysis.

8.3 Presentations by invited experts and discussion

Mr. Philippe Chotteau (Institut de l'Elevage) expressed concerns on the EU baseline projections on beef consumption. He argued that projected beef consumption should rather be lower in the medium term for two reasons. First, there is an increasing demand for meat substitutes (e.g., veggie burgers) linked to an increasing number of people who are concerned about animal welfare and the environmental impacts of livestock production. Second, beef consumption over the past decade has been steadily rising only in Germany; the 10-year trend in the main importing countries (Greece, Italy, Spain, France) has, in fact, a downward slope (Figure 30).

Mr. Chotteau also questioned the declining short-term projected exports of live cattle. In his view, the increasing demand for cattle ready to slaughter in non-EU Mediterranean countries (e.g., Turkey, Lebanon, Israel) suggests otherwise. However, there are also several threats for the market of live animals such as growing animal welfare and sanitary concerns, political embargos, and international competition from the other side

of the Atlantic, particularly Uruguay and Brazil. Since beef production in the EU is mainly sourced from dairy cattle, the impact of the dairy crisis on beef prices is big. As burgers take an increased share in beef consumption, this makes the segmentation of beef production from the suckler herd even more difficult. Finally, he stressed that specialized beef farmers, notably in cow-calf operations, face an increasing number of challenges such as dependence on coupled support (in most MS), heavy capital needs, and animal diseases that affect trade (e.g., Bluetongue). Taking all developments into account, Mr. Chotteau expects high meat price volatility over the next decade.

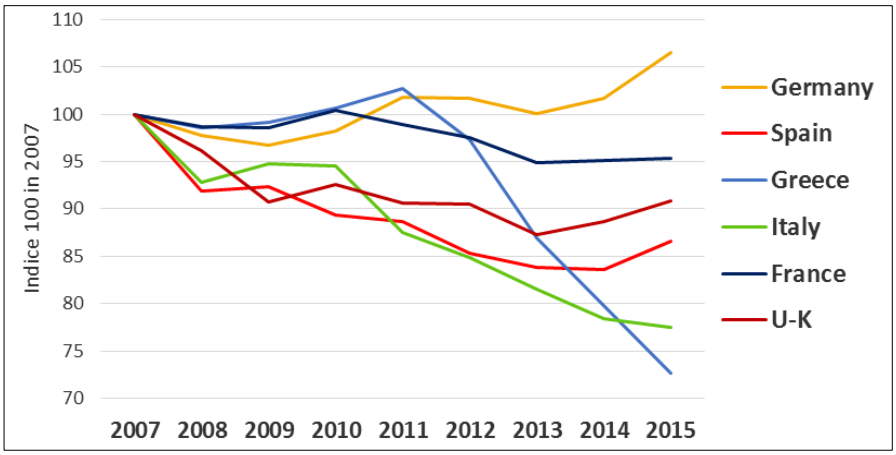


Figure 30: Beef consumption in the main importing MS

Source: Slides of Philippe Chotteau (Institut de l'Elevage)

Pablo Bernardos Hernández (MAGRAMA) commented on the preliminary outlook results for the pigmeat markets and presented his expectations regarding future developments. He started his presentation with a recent real-world example in the EU pigmeat market that illustrates why commodity markets are difficult to simulate at least in the short-term. Overproduction in the EU pig market since 2014 and sanitation-related allegations built up stocks that pushed domestic prices down. Therefore, the message for EU pigmeat production at the beginning of 2016 was rather clear: stabilize or decrease production in order to increase domestic prices. However, the situation changed owing to China, where domestic prices skyrocketed due to structural changes, environmental issues, and the subsequent destocking. China went from *'being the first importer of pig products to being the very first importer'*. As a consequence, EU exports to China doubled, surpluses disappeared in a few months, and prices recovered sooner than expected. In general, although the EU persists as the main exporter of pigmeat to China, the US and Canada are well-positioned to increase exports as well, given of course their product availability and the adoption of production systems in response to China's restructuring of the sector.

Mr. Bernardos Hernandez emphasized that the integration of environmental constraints (e.g., ammonia emissions, excessive nitrogen) into agricultural and environmental policy will lead to production specialization (Figure 31). Denmark and the Netherlands, for instance, will likely export piglets that will be fattened and slaughtered in Germany, whereas mixed systems will prevail in Spain, France, and Italy, even considering differences regarding their commercial positions.

Consumption trends are likely to differ per MS and meat product, and therefore looking at the EU trend hides considerable variability at the country level. In Spain, for example, domestic consumption moved from fresh to processed pigmeat within the last decade because consumer preferences evolved. These trends shook up in recent years due to the increasingly importance of healthy diets, and the consumption of fresh meat recovered while processed meat consumption declined.

In concluding his presentation, Mr. Bernardos Hernández highlighted the 'trade dilemma', with trade prospects being highly driven by sanitary status, trade agreements, and the evolution of demand, probably the only factor which could be considered predictable in the medium term. Russia, a former key market for the EU, will likely reach self-sufficiency and could even become a net exporter of pigmeat in the medium term. China, on the other hand, sees domestic demand increasing faster than supply, thus implying that self-sufficiency rates of pigmeat are declining. Consequently, Chinese pigmeat imports are expected to further increase. Ultimately, Mr. Bernardos Hernandez emphasized the high demand for EU pigmeat exports, which implies that domestic pigmeat production may be higher than projected, and export prospects seem more favourable than suggested in the EU outlook.

Figure 31: Expected production specialization in the EU meat industry

Source: Slides of Pablo Bernardos Hernández (MAGRAMA)

According to Christian Renault (AND International), three factors drive EU poultry production: domestic population, world demand for poultry and the corresponding EU market share, and poultry meat's share of the EU meat market. EU population is growing slowly, and therefore will not lead to big changes in domestic production and consumption. World demand for poultry is also growing at constant rates (2% p.a.), but the EU market shares will not grow in the short term. Poultry meat's share of the EU meat market, on the other hand, will keep growing owing to decreasing domestic prices.

The EU poultry meat industry, especially in the best-performing MS, has become cost-competitive compared with the US supply chain. However, an important point in Mr. Renault's presentation pertained to the capacities of the growing Ukrainian sector. Ukraine is a particularly interesting case due to low production costs, low labour costs, and the import tariffs applied by the EU. It is questionable whether Ukraine will rely on the EU as a poultry buyer in the future, as it is important for them to export poultry to countries that are ready to buy large volumes without custom duties. Regarding EU poultry exports, Mr. Renault underlined that most of the exports are by-products (e.g., legs, mechanically deboned meat, hens). Given that the EU internal poultry market will be mainly fuelled by domestic production, additional quantities of by-products are expected to be generated and exported (he considered that 10 kilograms cwe on the EU market generates 1 kilogram to be exported).

In concluding his presentation, Mr. Renault presented the recent French experimentation in terms of labelling rules for processed meat and meat products. Currently, the EU-wide system of compulsory labelling on animal welfare covers only eggs. After recent EU rules

concerning labelling meat from pigs, poultry, sheep and goats that is sold (fresh, chilled or frozen), France became the first country to introduce compulsory origin labelling of raw material for meat products, which is expected to take effect in 2017. Farmers and consumer groups in France support this action under the general argument that it will build brand value and force meat supply chains to be more transparent. In the open discussion after the presentation, some participants agreed on this point saying that they would also be willing to reduce meat (particularly poultry) consumption and pay for the added value of welfare labelling. However, this action is opposed by some stakeholders with the argument that it contradicts the single-market principle and may have immediate market impacts (e.g., higher consumer prices, higher labelling-induced costs). Other countries (e.g., Italy) will likely follow the French example. In a similar manner, the promotion of eco-friendly meat may also strengthen in the future.

Following the presentations, it was once more emphasized that the EU livestock sector has to adapt to continuous challenges. For instance, environmental issues will likely increase the role of production specialization and vertical market integration within and across MS. The prospects for EU meat exports were also discussed. Meat exports to Turkey may decline because Turkey develops its own production, but there is potential for export of live farm animals for finishing due to close distance. The general potential for EU export of live farm animals outside the EU, though, is questionable; Australia, China and South America will likely keep dominating the market. Although China is also restructuring the meat sector, participants were generally optimistic that the high EU export volume of 2016 can continue in the medium term. It was pointed out that the EU can further export to China meat products that are less desirable for domestic consumption but more desired by the Chinese consumer (e.g., chicken feet). Finally, it was assumed that in 2018 the EU can expect exports of pigmeat to Russia, given that the ban is lifted, albeit at lower levels than the historical ones.

At the end of the session, participants were asked to answer the following question: 'Given that EU per capita consumption of poultry is about 23.6 kilograms in 2016, what will it be in 2026?' The responses of 30 participants are shown in the Figure below.

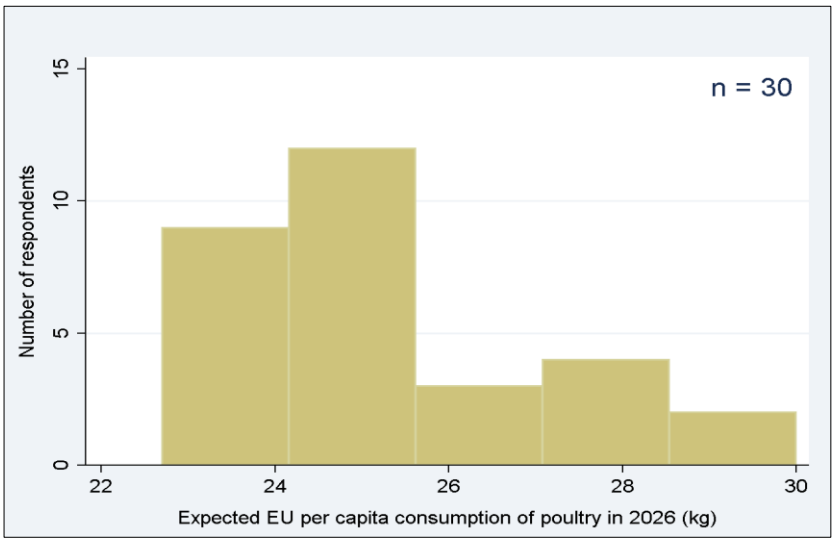


Figure 32: Summary of the participants' answers to the question: 'Given that EU per capita consumption of poultry is about 23.6 kilograms in 2016, what will it be in 2026?'

Source: Workshop poll

9 Agricultural income, and environment

The EU income module aims at projecting agricultural income at the EU level. The main statistical sources used are the Economic Accounts for Agriculture. In addition to the prospects for EU income conducted with the Aglink-Cosimo model, this section includes projections on GHG emissions from EU agriculture with the CAPRI model.

9.1 Preliminary EU outlook, 2016-2026

Income in the EU module of Aglink-Cosimo is composed of revenues minus costs. The revenue side comprises the value of production of commodities included in the model, that of commodities not included in the model (i.e., fruits, vegetables, wine, olive oil), and services from agriculture to other sectors. The cost side comprises seeds, feed, energy, fertilizers, and other intermediate costs including machinery and hired labour. The difference between these two blocks leads to the net (gross) value added given that depreciation of machinery and buildings is included into (excluded from) the costs. Factor income is obtained by adding subsidies and subtracting taxes. Both the value and the costs of production are projected to increase in the medium term; the former due to the (exogenous) inclusion of high-value products not covered in the outlook, and the latter due to increasing energy costs, fertilizer costs, and depreciation.

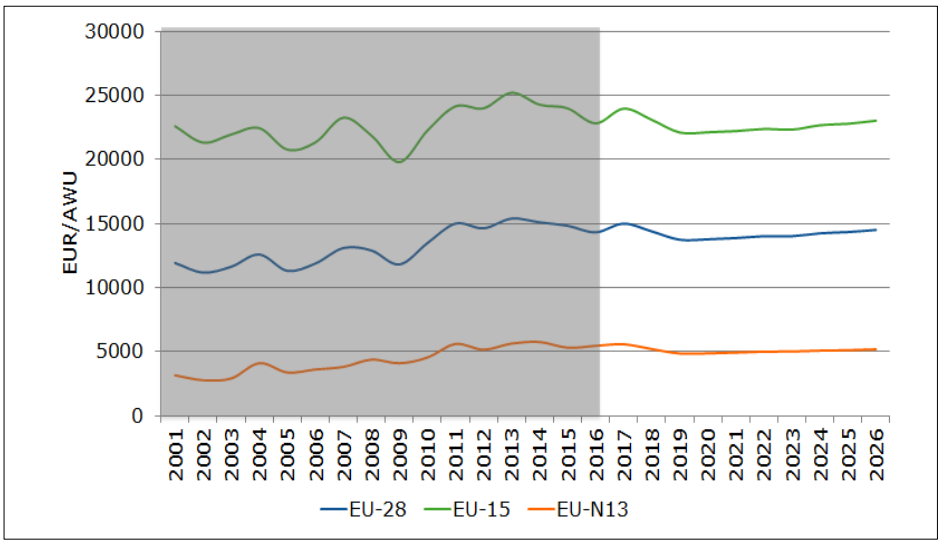


Figure 33: Real income per AWU in the EU

Source: Slides of Koen Mondelaers (DG AGRI)

According to Koen Mondelaers (DG AGRI), agricultural income per annual working unit (AWU) in EU-28 is expected to stabilize over the 2016-2026 outlook period within historical levels (Figure 33). This result is attributed to *(i)* a small but positive difference between the projected increase in total value of production and the intermediate costs and assumed depreciation, and to *(ii)* relatively low labour outflow (from 9.3 million AWU in 2015 to about 8 million in 2026). The gap between real income in EU-15 and EU-N13 does not seem to narrow as the increase in production value in EU-N13 is not enough to compensate for the increase in costs, despite the fact that labour outflow is expected to be higher in EU-N13.

9.2 Environmental analysis of the 2016 baseline

Jean-Michel Terres (JRC) presented an environmental analysis of the 2016 CAPRI baseline[7]. The agricultural sector accounts approximately for 10% (2014) of the total anthropogenic GHG emissions. Three GHGs are involved in agriculture: methane (230 million tonnes of CO_2 equivalent), nitrous oxide (180 million tonnes of CO_2 equivalent) and CO_2 (about 10 million tonnes). In the CAPRI baseline most of methane emissions come from the digestion of ruminants, whereas nitrous oxide originates from manure management, grazing, crop residues, and mineral fertilizers. Overall, most emissions come directly (72%) or indirectly (90%) from livestock production.

By 2025, total GHG emissions are projected to decrease by 1% (vs. 2008). On a per-hectare basis, however, they will increase by 2% due to livestock intensification. Total ammonia emissions are expected to go down by 10% overall and 7% per hectare, as the number of animals decreases more than total UAA. Emissions are concentrated in high-density livestock areas such as Catalonia, Lombardy, Northern Germany, and Portugal (Figure 34).

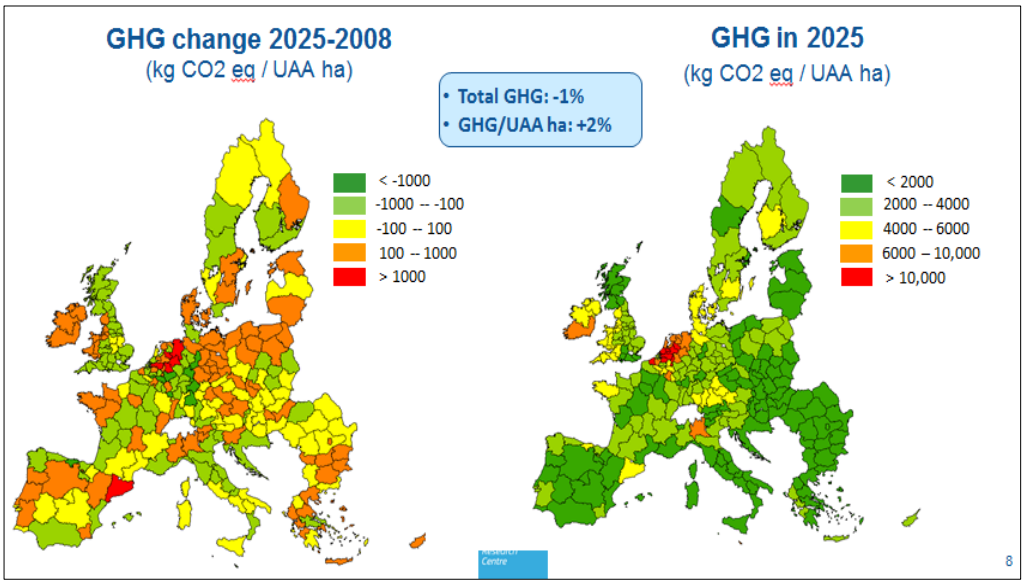


Figure 34: GHG emissions per NUTS2 region in 2025 vs. 2008 (CAPRI baseline)

Source: Slides of Jean-Michel Terres and Maria Bielza (JRC)

Total nitrogen surplus decreases by 2.7% but increases on a per-hectare basis by 0.6%. By 2025, the highest nitrogen surplus in absolute terms is found in regions where GHG emissions are high such as in Catalonia and Lombardy, where the number of pigs increases significantly.

9.3 Discussion

The first income-related question raised by participants was how yield productivity is taken into account in the baseline. Mr. Mondelaers explained that there may be no explicit link between advances in inputs and productivity, but productivity changes are accounted for through trend parameters. Technological change, for instance, which is typically assumed to have a positive effect on yields, is currently approximated by a time

[7] The 2016 CAPRI baseline is calibrated to the EU medium-term outlook published in 2015, and provides projections of the agricultural sector for the year 2025.

trend in the yield equations of Aglink-Cosimo. Furthermore, as projections are built in a business-as-usual environment, alternative technologies are excluded; they can be nonetheless, examined with scenario analysis.

A participant questioned whether the audience feels stressed by the depressing EU income projections, because EU income has been historically less volatile than US income. Mr. Mondelaers argued that increasing costs of land, the ending of quotas, and the income gap between EU-15 and EU-N13 not closing on all commodity markets put indeed pressure on EU policymakers. However, the intensification of dairy and meat production, better crop prices, and the continuous outflow of the workforce employed in EU agriculture lead to generally increasing farm income in nominal terms towards the end of the projection period.

There were concerns on whether agricultural and non-agricultural income can be compared on equal ground. Agricultural income is much lower compared with average wage in the total economy. Mr. Mondelaers argued that it is interesting to know the relative position of agriculture and to understand what might drive agricultural labour development. Although a consensus was not reached, it was unequivocally recognized that agriculture is more prone to risks than other sectors of the economy. Risk in agriculture are numerous, diverse, and not always systematic, and therefore market instruments cannot guarantee insurance against all types of risk. This cognitive failure makes it difficult for producers to fully manage agricultural risk.

The discussion ended with two environment-related questions. First, a participant asked whether carbon sequestration was taken into account in the CAPRI baseline. Mr. Terres clarified that it was not but also that a carbon-flow module will be included in the near future into CAPRI. Mr. Fellmann added that carbon sequestration will be included in a forthcoming project (EcAMPA III).

Finally, the viability of anaerobic digestion of ruminants was questioned. Mr. Pérez Domínguez argued that without further economic incentives to the adoption of innovative technologies, it would be difficult for the anaerobic digestion to be economically viable.

Annex 1: List of participants

External participant	*Affiliation*
Ulrich Adam	CEMA (European Agricultural Machinery)
Mamoun Amrouk	FAO (Food and Agriculture Organization)
Alexander Anton	EDA (European Dairy Association)
Teresa Babuscio	COCERAL
Jack Baines	European Association of Dairy Trade (Eucolait)
Jean-Marie Barillere	CEEV (Comité Européen des Entreprises Vins)
Elie Bellevrat	IEA (International Energy Agenc)
Pablo Bernardos Hernández	MAGRAMA (Spanish Ministry of Agriculture)
Francesca Bignami	FoodDrinkEurope
Philippe Binard	Freshfel
Julian Binfield	Food and Agricultural Policy Research Institute
Maria Blanco Fonseca	Universidad Politécnica de Madrid
Gary Blumenthal	World Perspectives
Richard Brown	Gira
Jeroen Buysse	Ghent University
James Caffyn	Gira
Gerard Calbrix	ATLA
Philippe Chotteau	Institut de l'Elevage
Patty Clayton	AHDB (Agriculture and Horticulture Development Board)
Christophe Cogny	Tallage
Juan Corbalán Garcia	Cooperativas Agro-alimentarias
Barbaros Corerekoglu	COCERAL
Frédéric Courleux	Momagri
Claudiu Covrig	Kingsman
Chris Dawson	Fertilizers Europe
Kees De Roest	CRPA (Centro Ricerche Produzioni Animali)
Rafael del Rey	OeMv (Observatorio Español de los Mercados del Vino)
Trevor Donnellan	Teagasc
Philippe Dusser	Groupe Avril
Lacoste Elisabeth	CIBE (International Confed. of European Beet Growers)
Klaudia Feuerle	Eucolait (European Association of Dairy Trade)
Louisa Follis	Bunge

Josh Gartland	CEFS (European Committee of Sugar Manufacturers)
Hubertus Gay	OECD
Carole Gendron	AAFC (Agriculture and Agri-Food Canada)
Aida Gonzalez-Mellado	Thuenen Institute
Emélie Halle	Groupe Avril
Tim Hamers	CEMA (European agricultural machinery)
Peter Hofland	Cargill
Roel Jongeneel	AGMEMOD consortium/ Wageningen Economic Research
Ad Klaassen	Dutch Produce Association
Muriel Korter	CAOBISCO
Olivia La Lamer	FranceAgriMer
Paul-Henri Lava	AVEC (Assoc. of Poultry Processors and Poultry Trade)
Stefan Lehner	WVZ (Wirtschaftliche Vereinigung Zucker)
Ganqiong Li	CAAS (Chinese Academy of Agricultural Sciences)
Jukka Likitalo	Eucolait (European Association of Dairy Trade)
Jaime Lillo	International Olive Council
François Luguenot	InVivo
Nicolas Martin	FEFAC (European Feed Manufacturers' Federation)
Timothé Masson	CGB (Conféd.Générale des Planteurs de Betterave)
Bénédicte Masure	EDA (European Dairy Association)
Holger Matthey	FAO
Jean-Luc Mériaux	UECBV (European Livestock and Meat Trades Union)
Seth Meyer	USDA (United States Department of Agriculture)
Thordis Möller	BayWa AG
Markus Neundörfer	Südzucker
Ben O'Brien	Beef + Lamb New Zealand
Paula O'Dwyer	Glanbia Ingredients Ireland
Gabriel Omnès	Tallage
Klaas Johan Osinga	LTO
Ioannis Pallas	CEEV (Comité Européen des Entreprises Vins)
Arnaud Petit	COPA-COGECA
Jaime Picarra	FEFAC (European Feed Manufacturers' Federation)
Helen Plant	AHDB (Agriculture & Horticulture Development Board)
Norbert Potori	AKI (Research Institute for Agricultural Economics)
Francis Reid	Fonterra
Christian Renault	AND International
Marie-Christine Ribera	CEFS (European Committee of Sugar Manufacturers)
Alba Ridao-Bouloumié	EUCOFEL (European F&V Trade Association)
Kathy Roussel	AHDB (Agriculture & Horticulture Development Board)
Petra Salomon	Thuenen Institute
Thomas Sanchez	UECBV (European Livestock and Meat Trades Union)

Andreas Sommer	Bunge
Claude Soudé	FOP
Tiffanie Stephani	Fertilizers Europe
Matthew Stone	PRIMA
Axel Tonini	Swiss Federal Office of Agriculture
Myrna Van Leeuwen	Wageningen Economic Research
Elisabeth Waelbroeck Rocha	IHS Markit
Lukasz Wyrzykowsk	IFCN (International Farm Comparison Network)
Leonardo Zilio	Freelancer

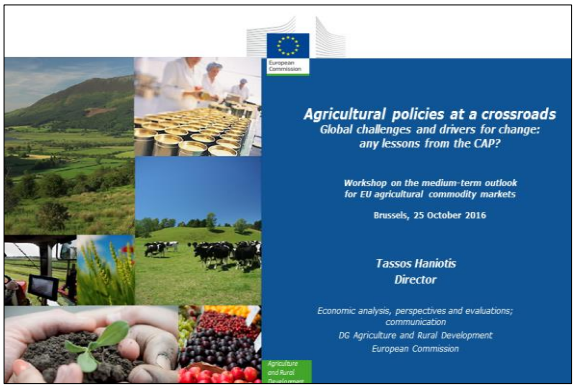
Internal participants (European Commission)			
Jesús Barreiro-Hurlé	JRC Seville	Tassos Haniotis	AGRI
Thomas Chatzopoulos	JRC Seville	Sophie Hélaine	AGRI
Els De Rademaeker	JRC Seville	Mireille Heylen	AGRI
Thomas Fellmann	JRC Seville	Aurora Ierugan	AGRI
Giampiero Genovese	JRC Seville	Andreas Kolodziejak	AGRI
Hans Jensen	JRC Seville	Mariusz Legowski	AGRI
Silvia Kanadani Campos	JRC Seville	Carl-Johan Linden	AGRI
Ignacio Pérez Domínguez	JRC Seville	Pierluigi Londero	AGRI
Simone Pieralli	JRC Seville	Antonia Luetteken	AGRI
Leonor Rueda	JRC Seville	Stephanie Maeder	AGRI
Maria Bielza Díaz-Caneja	JRC Ispra	Carlos Martin Ovillo	AGRI
Jean Michel Terres	JRC Ispra	Laurent Mercier	AGRI
Julia Beile	JRC Brussels	Brigitte Misonne	AGRI
Maciej Krzysztofowicz	JRC Brussels	Koen Mondelaers	AGRI
Tine Van Criekinge	JRC Brussels	Jens-Aksel Munch	AGRI
Laura Aguglia	AGRI	Dangiris Nekrasius	AGRI
Fabienne Alcaraz	AGRI	Zulema Olivan Tomas	AGRI
Piotr Bajek	AGRI	Joao Onofre	AGRI
Balázs Bányász	AGRI	Joaquim Ordeig Vila	AGRI
Leila-Therese Barthomeuf	AGRI	Damien Plan	AGRI
Jean-Marie Bertrand	AGRI	Mauro Poinelli	AGRI
John Clarke	AGRI	Raluca Rusu	AGRI
Jos Daelemans	AGRI	Fabien Santini	AGRI
Alberto D'Avino	AGRI	Ave Schank-Lucas	AGRI
Manuel Del Pozo Ramos	AGRI	Bence Toth	AGRI
Koen Dillen	AGRI	Adamo Uboldi	AGRI
Mohamed El Aydam	AGRI	Benjamin Van Doorslaer	AGRI
Massimo Fagnini	AGRI	Martin Van Driel	AGRI
Angel Falder Huerta	AGRI	Ivo Vanderlinden	AGRI
Sergio Finato	AGRI	Eric Willems	AGRI

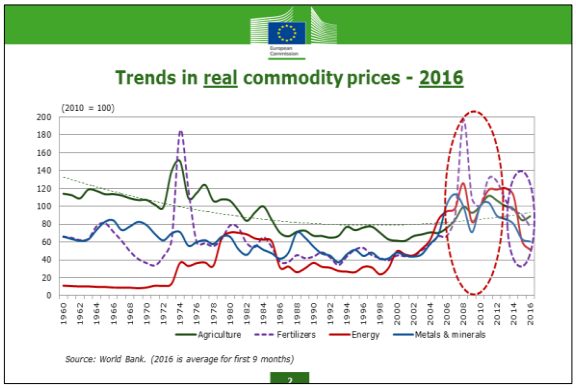
Luis Florez	AGRI	Justyna Wrobel	AGRI
Jean Luc Golinvaux	AGRI	Lucie Zolichova	AGRI
Jesús González García	AGRI	Gabor Zsugylek	AGRI
Rui Cavaleiro Azevedo	COMM	Caroline Pottier	ENV
Kenza Matraka	COMP	Josiane Masson	ENV
Philippe Chauve	COMP	Benjamin Vallin	GROW
Michel De Knoop	DEVCO	Stephane Perroux	IAS
Pierpaolo Piras	DEVCO	Alessandro Antimiani	TRADE
Roberto Aparicio	DEVCO	Stephan Nolte	TRADE
Pol Marquer	ESTAT	Ricardo Varanda Ribeiro	TRADE

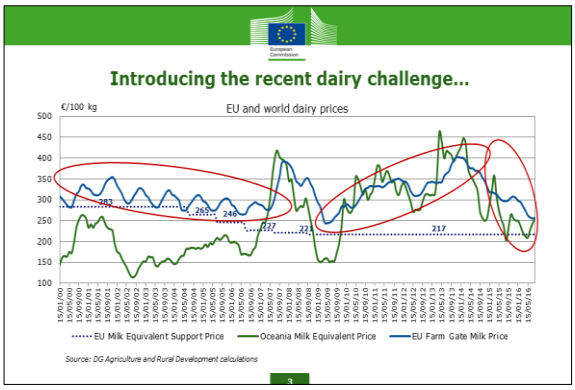
Annex 2: Workshop presentations

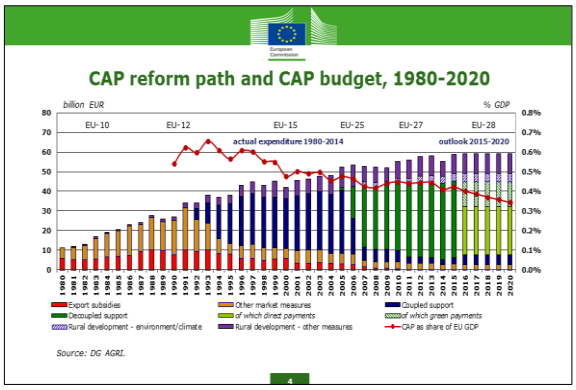
Session: Introduction

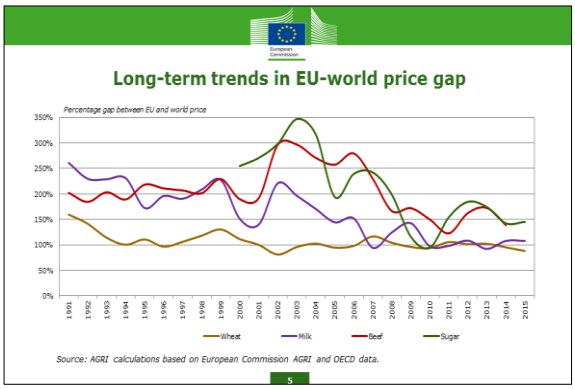
Tassos Haniotis (DG AGRI)

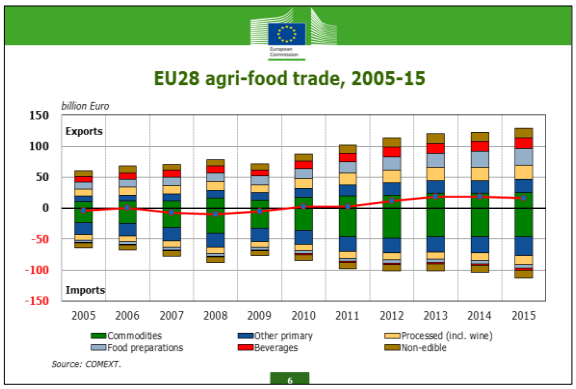


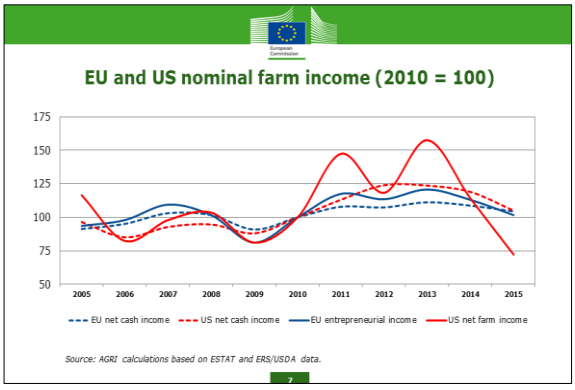


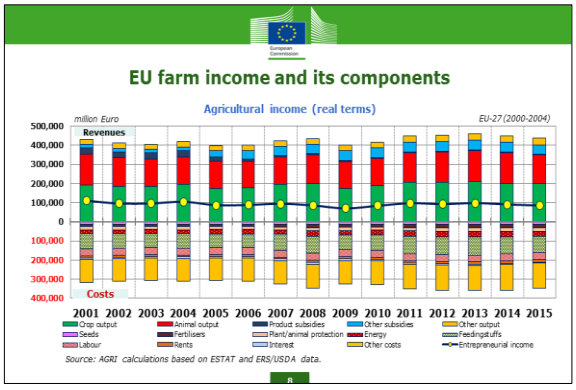




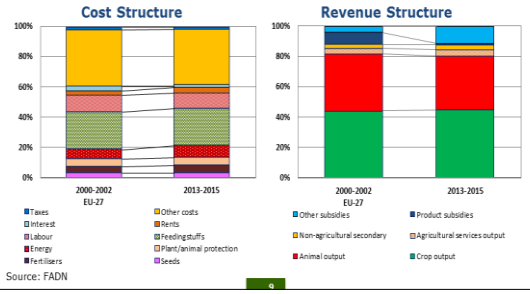








Cost and revenue structure – EU farming

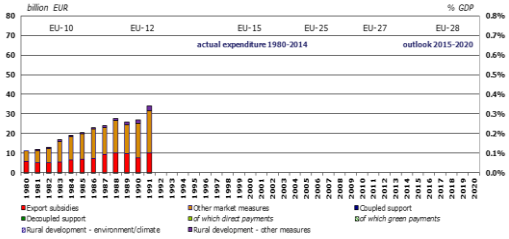


Source: FADN

9

The "defensive phase"

preceding the MacSharry reform

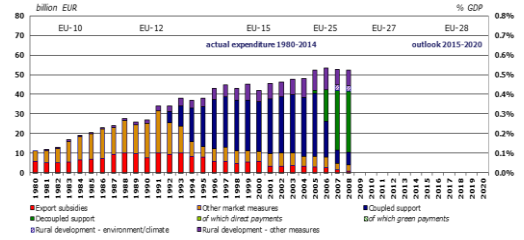


Source: DG AGRI.

10

The "offensive phase"

from MacSharry to Fischler and the "Health Check"

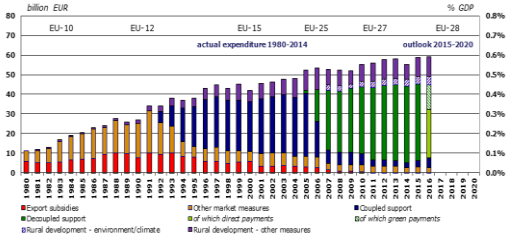


Source: DG AGRI.

11

The "uncertainty phase"

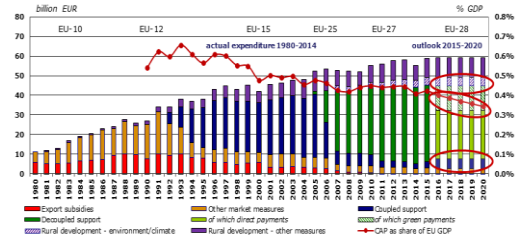
markets in aftermath of the financial crisis



Source: DG AGRI.

12

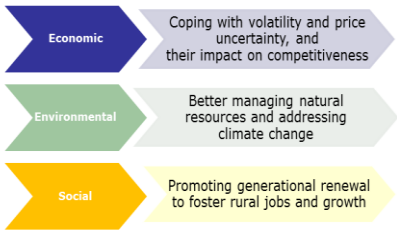
CAP reform path and future challenges



Source: DG AGRI.

13

Addressing challenges for EU agriculture



14

Different ways to address similar challenges

Agriculture as a sector (the 2 % EU sector)

- *Narrow focus on sectorial interests exposes agriculture's low overall economic weight*
- *Product-driven concerns are real; product-driven responses divide policy objectives*
- *Farm policy often on the defensive to justify its spending, not its broader objectives*

Agriculture as land coverage (the 40 % EU sector)

- *Land use, new focus of the CAP, addresses both environmental and climate challenges*
- *Input use challenges shift focus on "product" attributes and their impact on sustainability*
- *Addressing the supply chain functioning is also relevant for land-use and food waste*

Agriculture as food provision (the 100 % sector for all)

- *Food demand-driven policy concerns unify the food policy focus and reform opportunities*
- *Up-stream, down-stream and horizontal linkages are potentially growth and job enhancing*
- *Technology and innovation will determine net employment and environmental effect*

15

Reports and data available at:

http://ec.europa.eu/agriculture/index_en.htm

http://ec.europa.eu/agriculture/markets-and-prices/index_en.htm

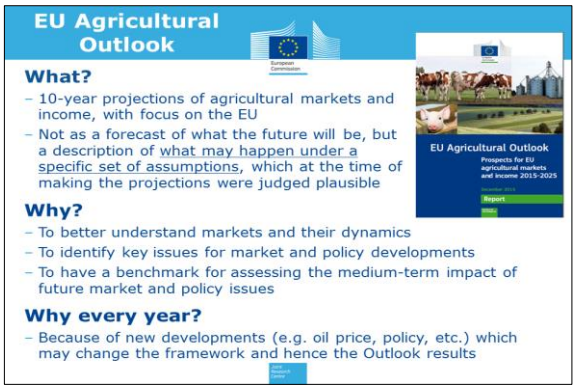
http://ec.europa.eu/agriculture/policy-perspectives/index_en.htm

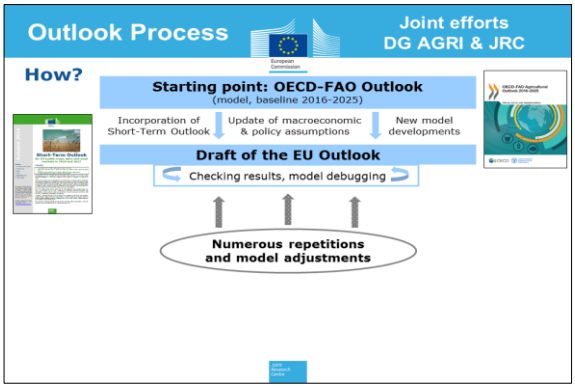
http://ec.europa.eu/agriculture/trade-analysis/index_en.htm

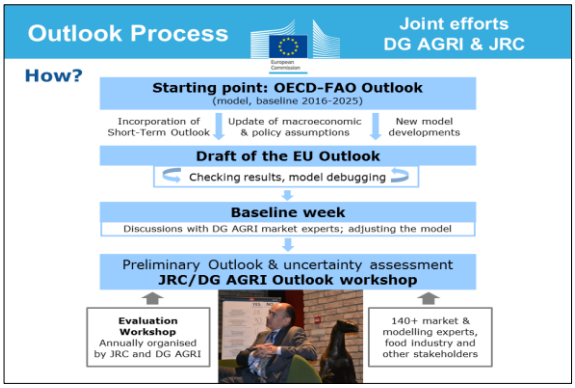
Thank you for your attention!

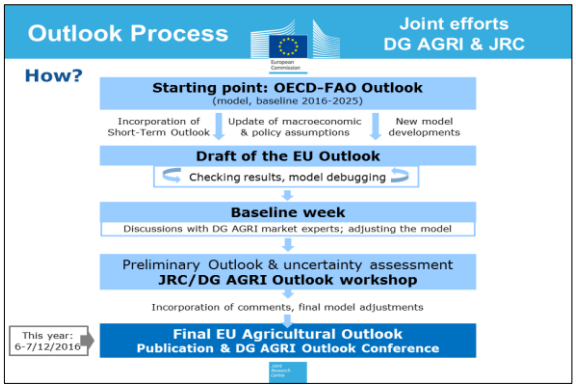
16

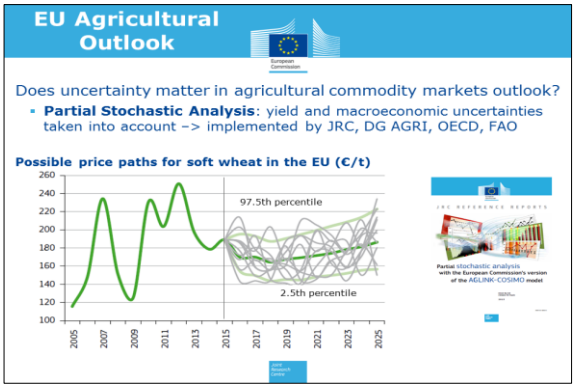
Giampiero Genovese (JRC)

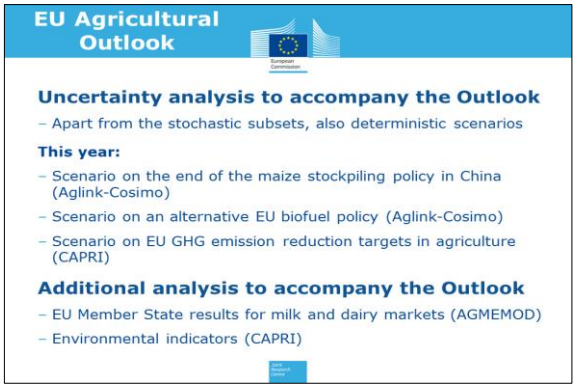


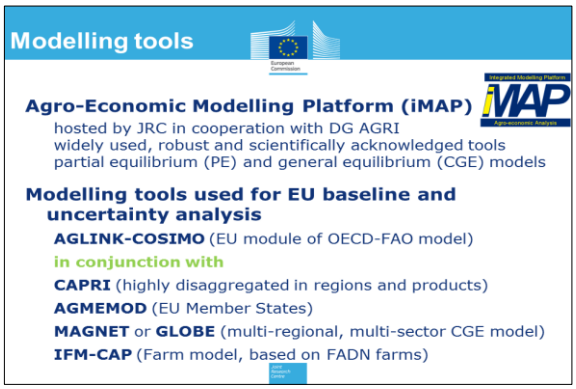


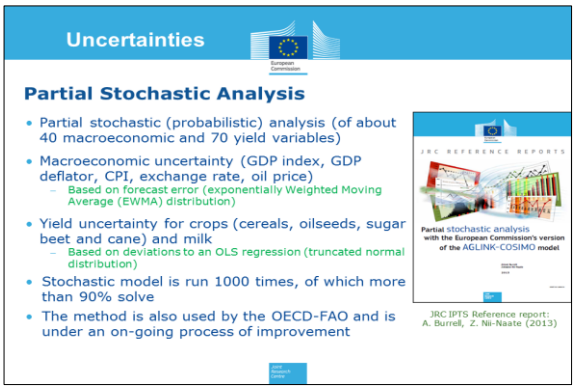






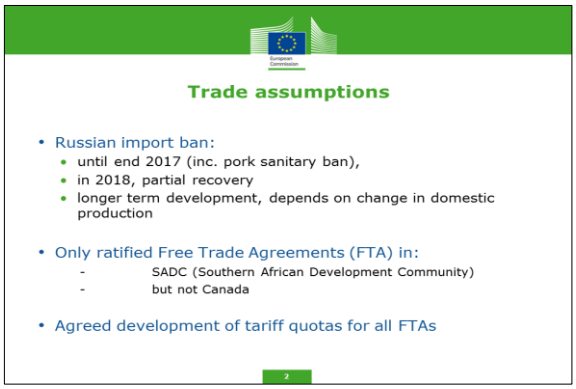


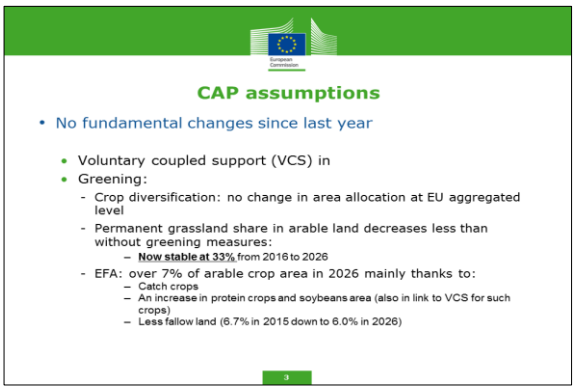




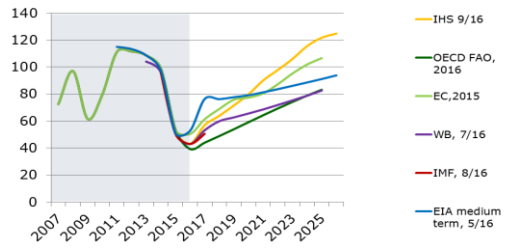
Session: Macroeconomic and energy context

Pierluigi Londero (DG AGRI)





Oil price assumption (USD/bbl)



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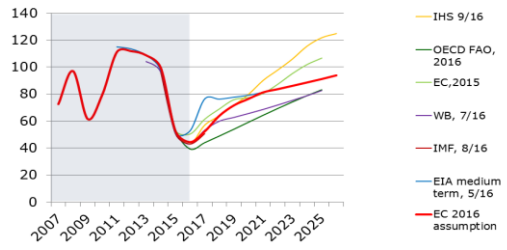
Oil price assumption (USD/bbl)



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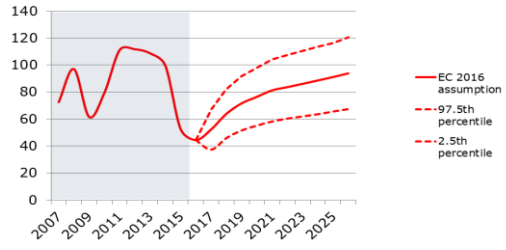
Oil price assumption (USD/bbl)



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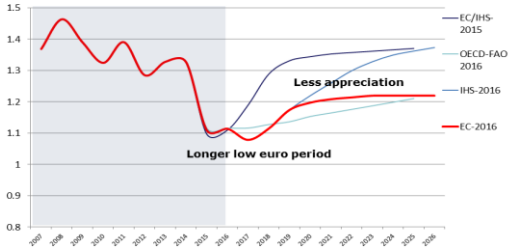
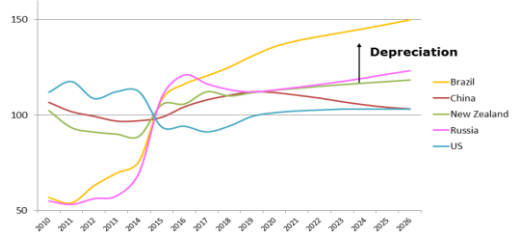
Exchange rate assumption (USD per EUR)



8

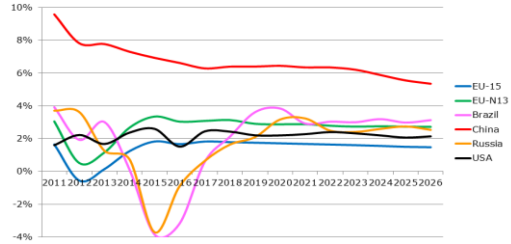
Evolution of Exchange rates to Euro (LCU per EUR - Index 100 = 2014-16)



Source: Preliminary DG AGRI Outlook

9

Economic growth assumptions (%)

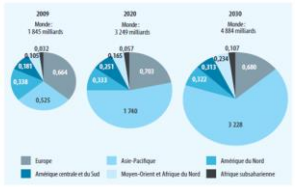


Source: Preliminary DG AGRI Outlook

10

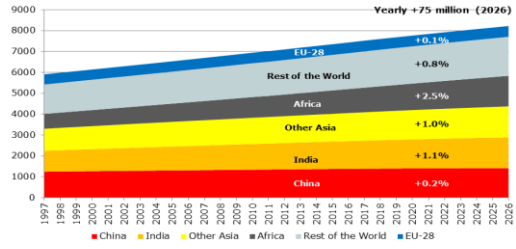
Expansion of middle class in the world

- Middle class: from 1.28 billion persons in 2009 to 4.8854 billion in 2030
- Strong reduction of EU and North America share in the world middle class
- Middle class understood as spending 10 to 100 USD daily (PPS 2005)
- Source : Idele from Brookings



11

Population assumptions (million, annual growth rate 2017-2026)



Source: Preliminary DG AGRI Outlook

12

Elisabeth Waelbroeck-Rocha (IHS Markit)

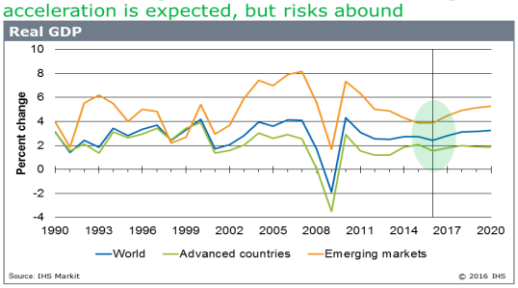
IHS Markit

Global outlook
Implications for oil prices

October 2016

Elisabeth Waelbroeck-Rocha, *Chief International Economist*

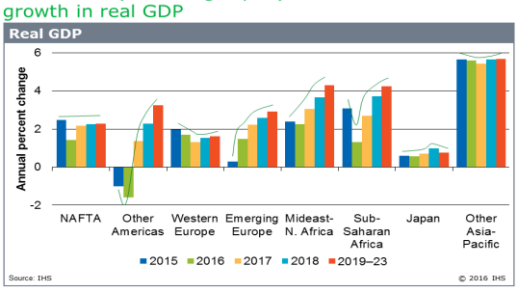
Real world GDP growth remains subdued. A slight acceleration is expected, but risks abound



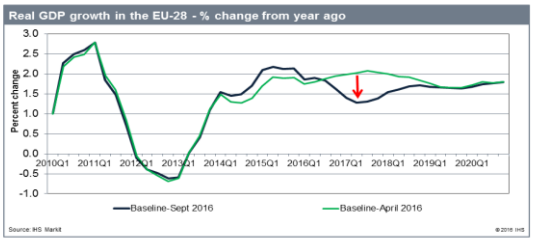
Improvements in the US and emerging markets will be offset by the deceleration in Europe and China

- US economic growth is expected to pick up from 1.5% in 2016 to 2.4% in 2017, as the inventory correction ends. Consumer spending will drive growth.
- Economic and political uncertainty will hurt UK investment, consumer spending, and capital inflows in the year ahead.
- Eurozone growth is projected to slow from 1.6% in 2016 to 1.3% in 2017, reflecting increased political instability and banking problems.
- China's economic growth will slow further because of structural overcapacity combined with imbalances in credit, housing, and industrial markets.
- Recessions in Brazil and Russia are ending.

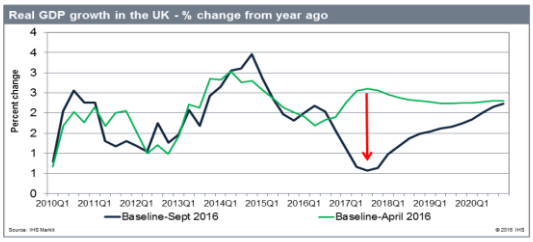
Asia-Pacific (excluding Japan) will achieve the fastest growth in real GDP



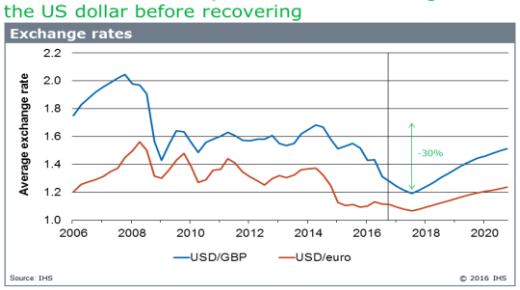
Growth in the EU-28 is set to decelerate, due to the consequences of the Brexit vote



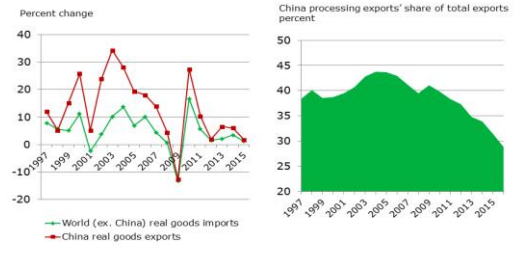
The outlook for the UK has been downgraded, due to lower investment and weaker £



£ and the euro are expected to fall further against the US dollar before recovering



China's role as factory of the world has plateaued



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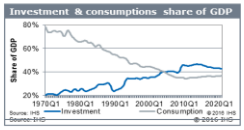
China outlook summary

Real GDP growth (%)

Investment & consumptions share of GDP



Chinese Yuan per US dollar*

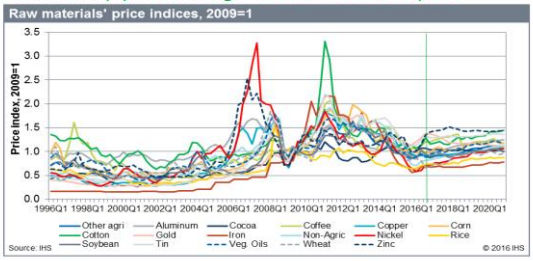
Current-account balance**

*Annual average, **Billions of US dollars

IHS Markit 10

Unless world growth accelerates significantly, commodity prices will grow at a moderate pace

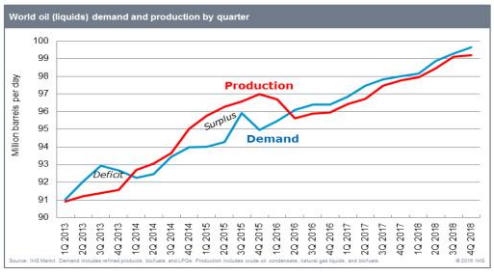
Raw materials' price indices, 2009=1



IHS Markit 13

World oil production will lag demand slightly in 2017-18, supporting a price recovery

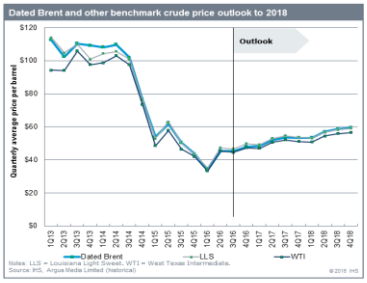
World oil (liquids) demand and production by quarter



IHS Markit

A modest global oil production deficit will support a shallow, rising price trend in 2017-18.

Dated Brent and other benchmark crude price outlook to 2018



Assumptions

US crude production troughs in 4Q 2016 and 1Q 2017; approaches its April 2015 high by end-2018

Output from the "Gulf-5" (Saudi Arabia, UAE, Kuwait, Iraq, and Iran) rises further

Growth in refined product demand remains moderate, but gains in NGL demand push up world liquids demand growth from 1.3 MMb/d in 2016 to an average of 1.4 MMb/d in 2017-18

Price outlook risks

Upside: Greater volumes of supply are unexpectedly disrupted—amid a thinning spare capacity cushion ; OPEC (+Russia?) decides AND implements

Downside: Global economic growth falters; global supply continues to exceed expectations as producers adjust to lower prices

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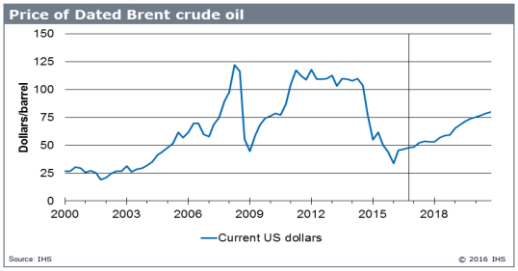
Further on, prices will accelerate to reach $80 by 2020 (nominal price)

Price of Dated Brent crude oil



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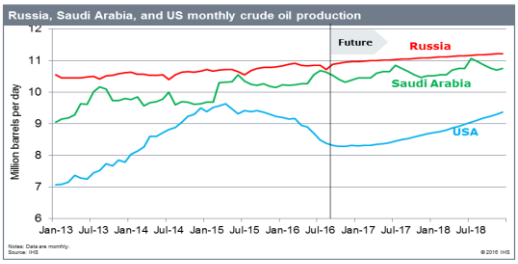
The "Big 3"—Russia, Saudi Arabia, and United States— are expected to contribute >70% of net global crude supply growth in 2017-18

Russia, Saudi Arabia, and US monthly crude oil production



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Risks around the oil price forecast

Upward risks (i.e. higher oil prices)

- Stronger world growth
- Slower oil production growth
- Supply disruptions
- Trend increases in costs
- Thinning spare capacity cushion

Downward risks on prices

- High inventory levels
- Faltering world activity

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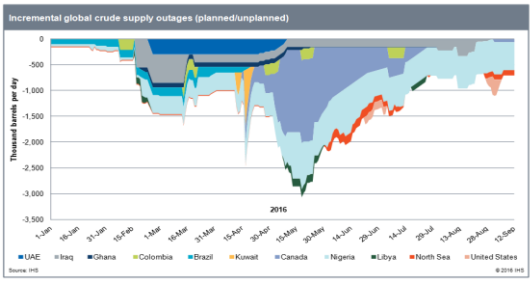
Outage: Nigeria disruption persists (+Libya – 1mmb/d)

Incremental global crude supply outages (planned/unplanned)



18

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What are the risks around this forecast?

- Political risks are high: changes in government always bring about changes in policies. Social tensions are high everywhere
- China continues to show signs of weakness
- US' future growth depends on the future policy mix
- Brexit monopolises attention, but little concrete is happening. Many possible scenarios likely, the key will be the impact on confidence
- Is another banking crisis looming?

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Key oil market messages

1. **A modest global oil production deficit will support a shallow, rising price trend in 2017-18.**
2. **After falling this year, world liquids production will begin rising again in 2017, due to higher production in the US but also OPEC.**
3. **World refined product demand growth is unlikely to pick up appreciably until the global economy does.**

Upside risks on oil prices:

- More production outages
- Agreements to cut production

Downside risks on oil prices:

- Faltering demand in a high inventory market

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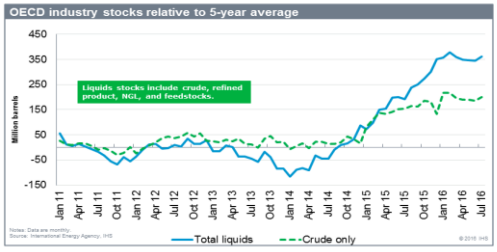
OECD total industry inventories remain high
Elevated stock levels will restrain upward price movements



19

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Elie Bellevrat (IEA)

International Energy Agency
Secure Sustainable Together

World Energy Outlook 2015

Elie Bellevrat
Agricultural Outlook Workshop
Brussels, 25 October 2016

The start of a new energy era?

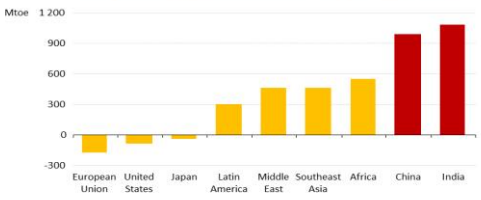
World Energy Outlook 2015

- **2015 and 2016 have seen lower prices for all fossil fuels**
  - *Oil & gas could face second year of falling upstream investment in 2016*
  - *Coal supply over-capacity taking a toll on the profitability of the industry*
- **Energy sector turns green?**
  - *Paris agreement will enter into force on 4 November 2016*
  - *Renewables capacity additions at a record-high in 2014 and 2015*
  - *Fossil-fuel subsidy reform, led by India & Indonesia, reduces the global subsidy bill below $500 billion in 2014*
  - *Carbon pricing covers 13% of global emissions, but China intention of trading system in 2017 will double this share*
- **Multiple signs of change, but are they moving the energy system in the right direction?**

Demand growth in Asia – the sequel

World Energy Outlook 2015

Change in energy demand in selected regions, 2014-2040

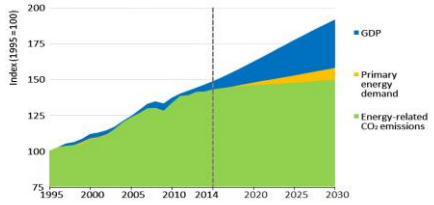


By 2040, India's energy demand closes in on that of the United States, even though demand per capita remains 40% below the world average

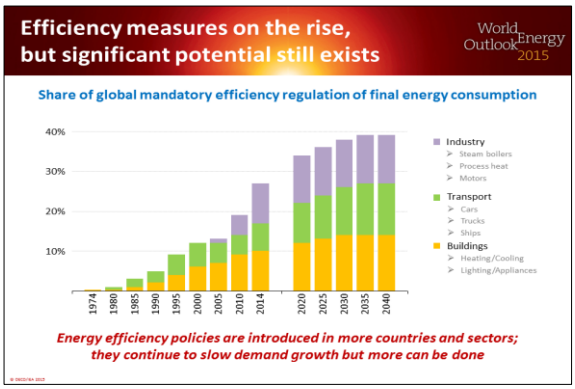
Energy sector starts to go its own way

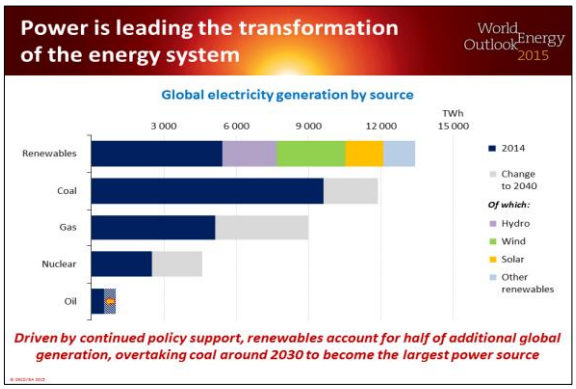
World Energy Outlook 2015

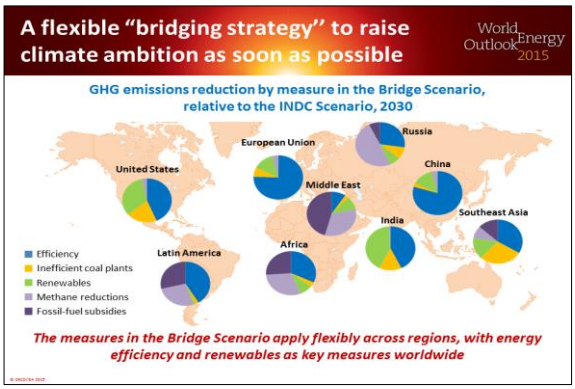
Growth in the global economy, primary energy demand and related CO_2 emissions

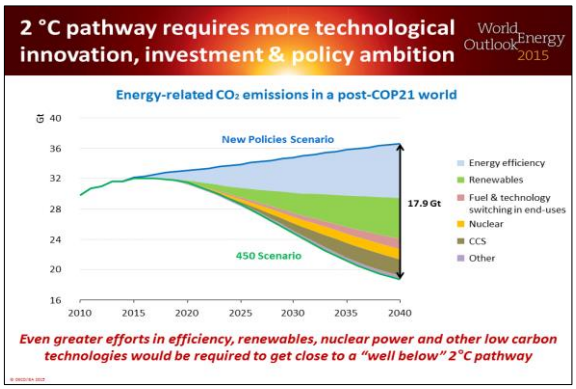


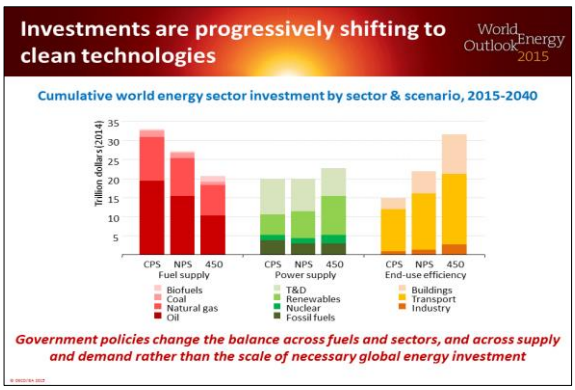
Growth in energy demand and emissions has tracked economic growth closely but decouples over time, with emissions growth slowing to a crawl by 2030

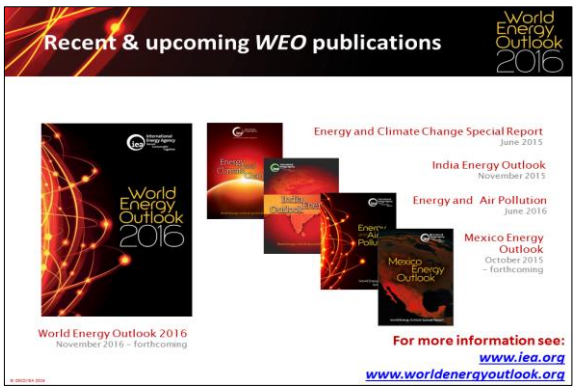




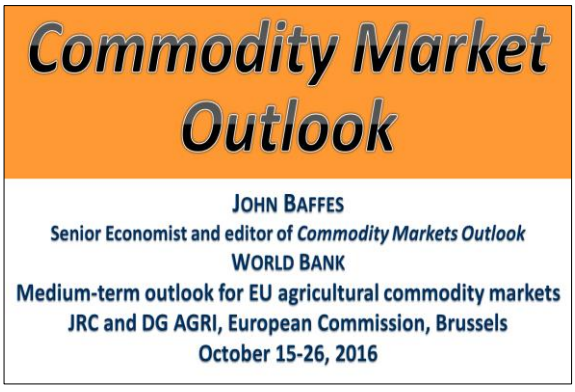


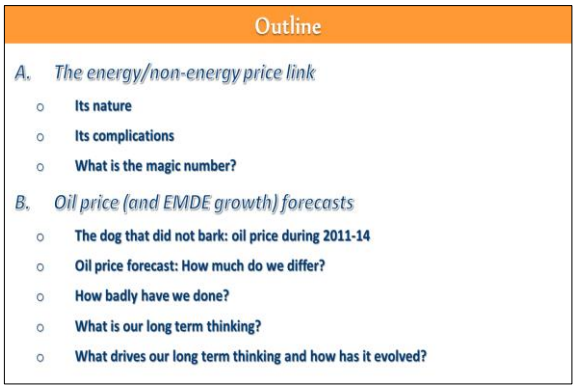




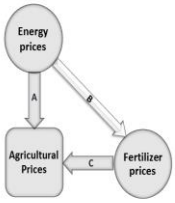


John Baffes (World Bank)





The energy/non-energy price link: How it looked prior to 2005

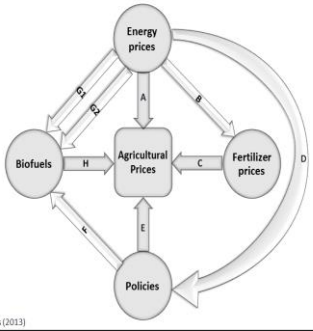


A: Crude oil (fuel)

B/C: Natural gas

Source: Baffes (2013)

The energy/non-energy price link: How it looked during 2005-14



A: Crude oil (fuel)

B/C: Natural gas

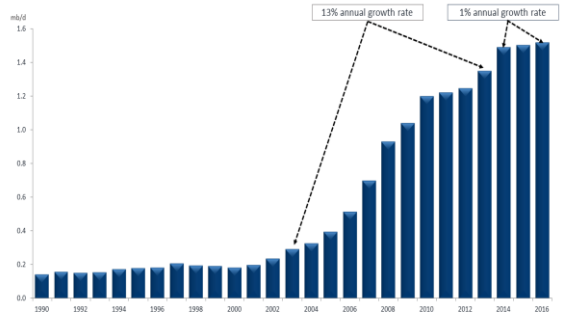
D/F: Policy-driven Biofuels

G1: Profitable biofuels (they may render A, B, and D/F irrelevant; oil price sets a floor to agricultural prices)

G2: Innovation in biofuels (agricultural prices fully linked to oil at lower level)

Source: Baffes (2013)

Its complications: # 1

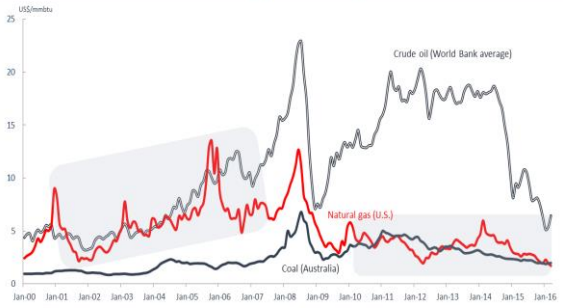


Source: BP Statistical Review and World Bank

Its complication: # 2

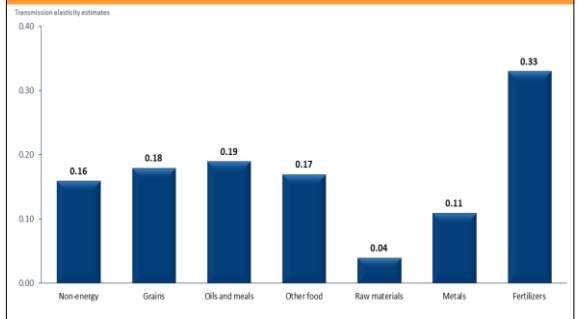
Source: World Bank
Note: Last observation is September 2016

Its complications: # 3



Source: World Bank
Note: Last observation is September 2016

Energy/non-energy price link, estimatates prior to 2005

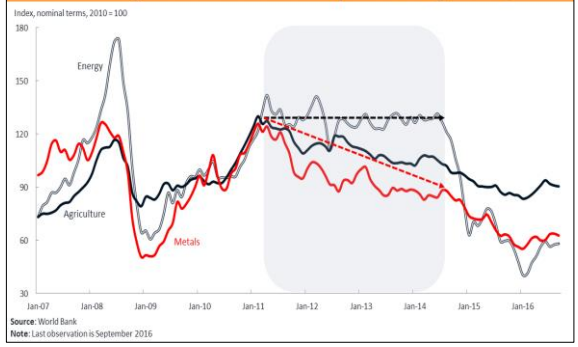


Source: Baffes (2007)
Notes: Based on OLS regression of nominal prices on: (1) oil price, (2) deflator, and (3) time trend. Annual data for 1960-2005.

What is the magic number?

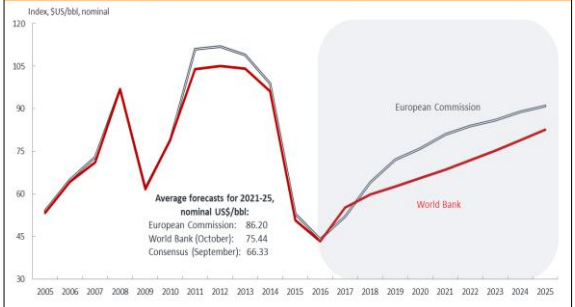
0.20

The dog that did not bark: oil price during 2011-14



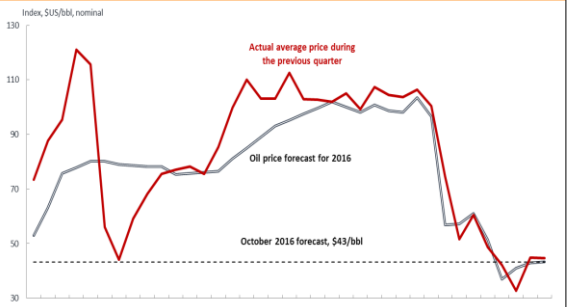
Source: World Bank
Note: Last observation is September 2016

Oil price forecast: How much do we differ?



Source: World Bank and European Commission
Notes: World Bank (average of Brent, WTI, Dubai), European Commission (most likely Brent)

The 10-year evolution of the oil price forecast for 2016



Source: World Bank

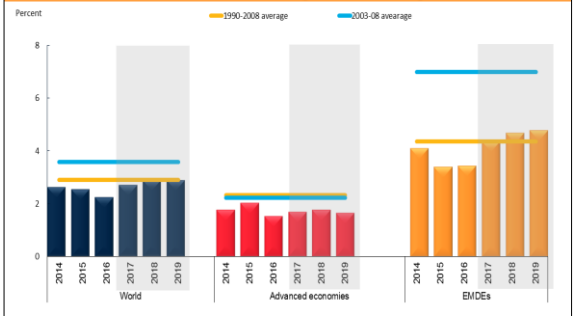
What is our long term thinking and how has it evolved?

Source: World Bank

What drives out long term thinking?

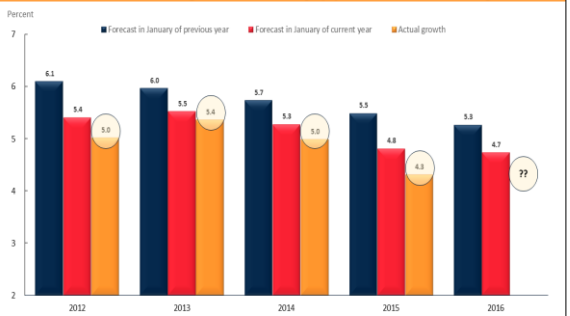
- **Supply**
  - Shale oil costs (short term)
  - Extraction costs (long term)
  - Depletion (long term)
- **Demand**
  - Growth prospects by emerging and developing economies
  - Industrial production
- **Policies**
  - OPEC (challenged by its own history, the history of commodity agreements, as well as the flexibility and resilience of the shale oil industry)
  - Geopolitics, conflicts, collapses (Middle East and Venezuela)
  - Environmental regulations (climate change-induced restrictions on the use of fossil fuels in general, not just oil)
  - Fuel subsidies, especially in oil producing countries

What drives our long term thinking?



Source: World Bank, *Global Economic Prospects*
Notes: Shaded areas (2017-19) indicate forecasts, 2016 are estimate, the rest are actuals.

What drives our long term thinking (2): Consistent downgrades

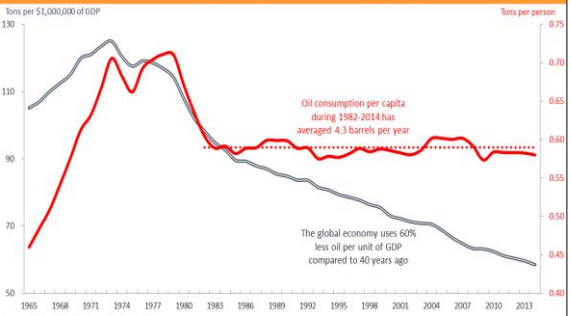


Source: World Bank, *Global Economic Prospects*
Notes: Growth refers emerging markets and developing countries.

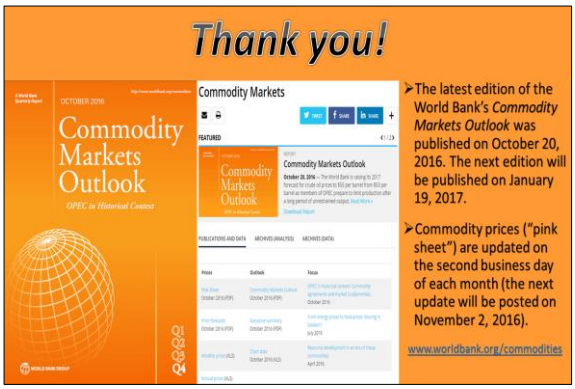
Oil prices and OPEC in perspective

Source: World Bank
Note: Last observation is September 2016

Oil consumption: per GDP and per capita

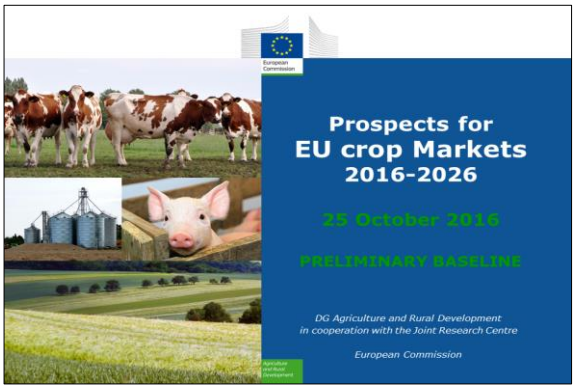


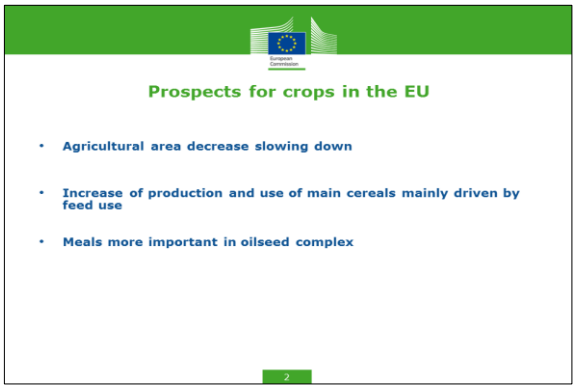
Source: BP Statistical Review and World Bank
Note: Last observation is 2014

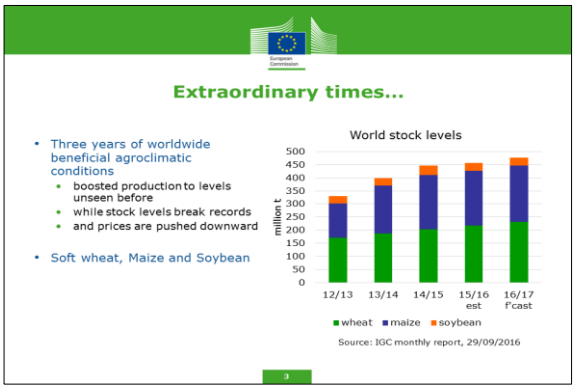


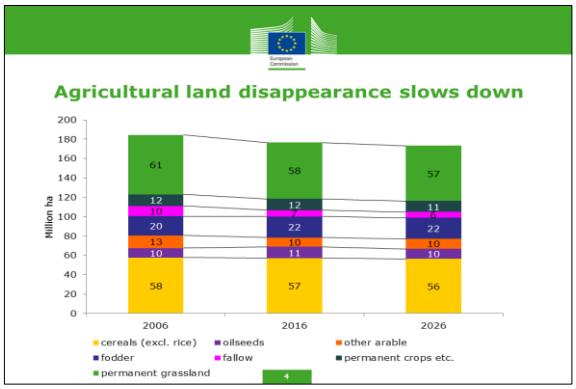
Session: Crops and oilseeds

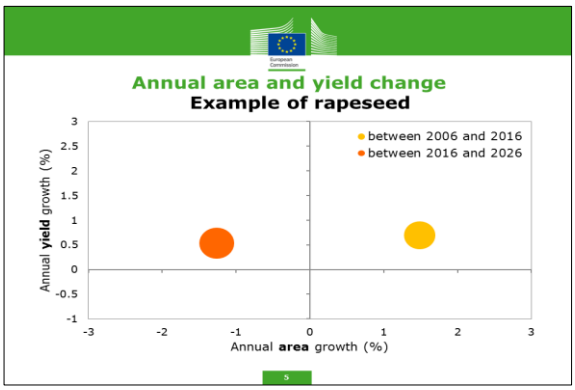
Koen Mondelaers (DG AGRI)

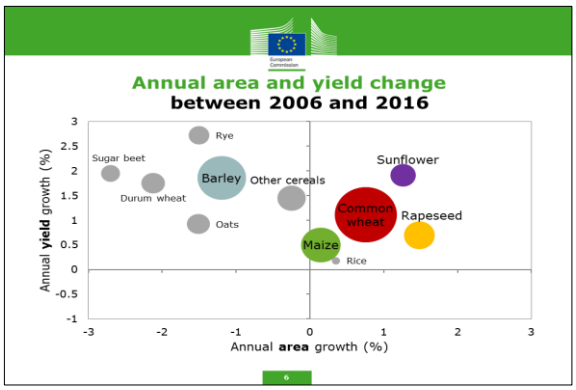




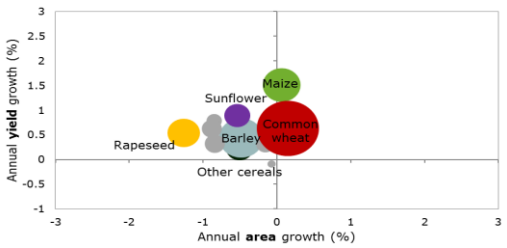








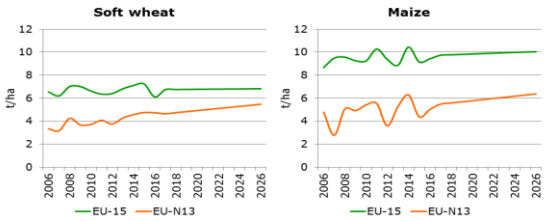
Annual area and yield change between 2016 and 2026



7

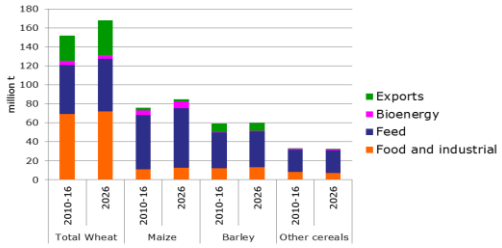
The yield gap closes further...

... between EU-N13 and EU-15



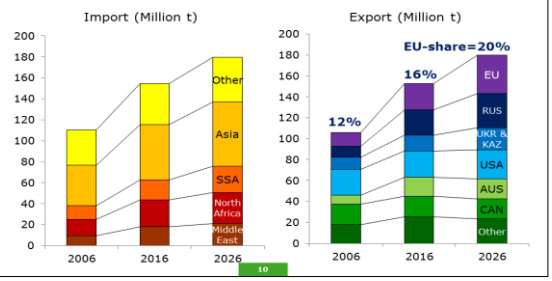
8

Feed use dominates cereal use



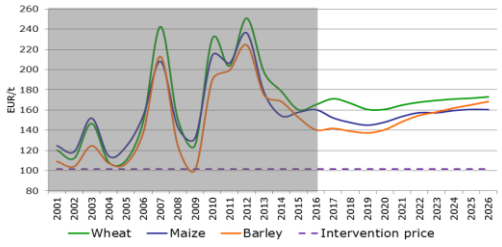
9

Opportunities to export wheat



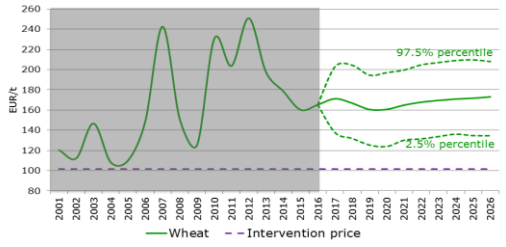
10

Cereal prices on a new plateau



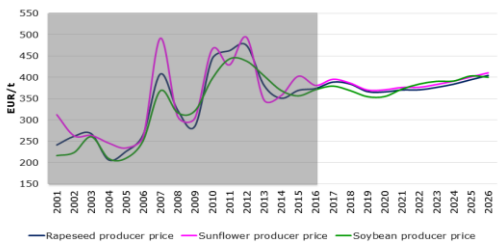
11

Uncertainty around wheat price



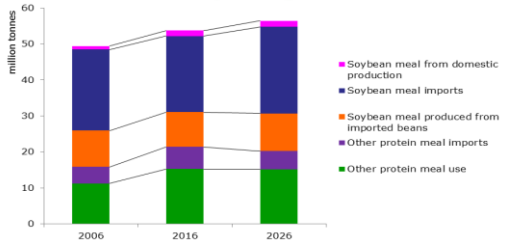
12

Similar to cereals, new price plateau for oilseeds

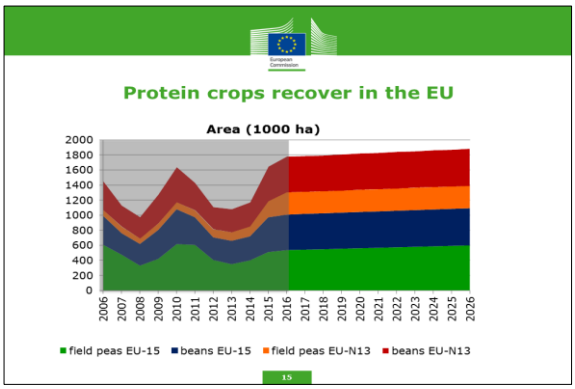


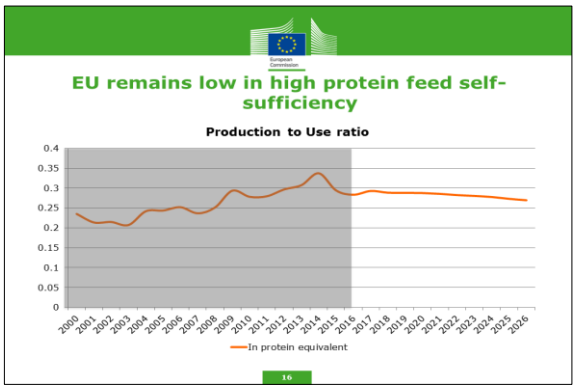
13

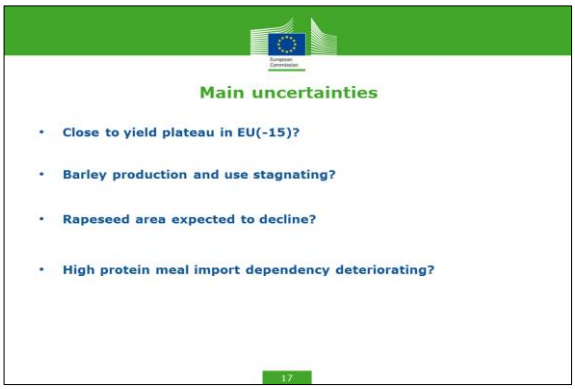
Meals in EU relatively more important... soybean gains



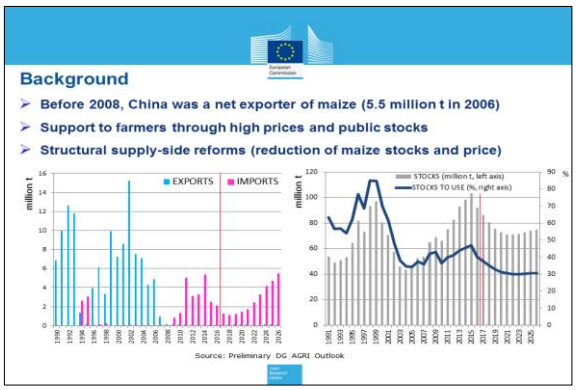
14

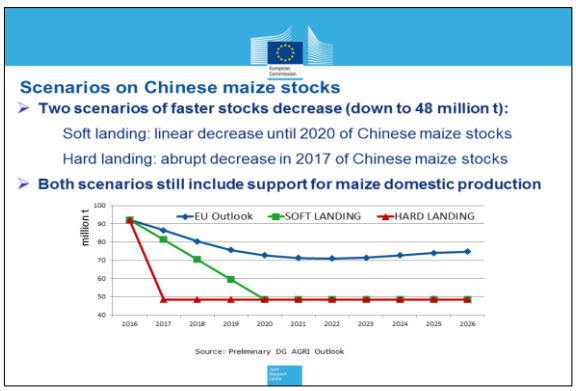


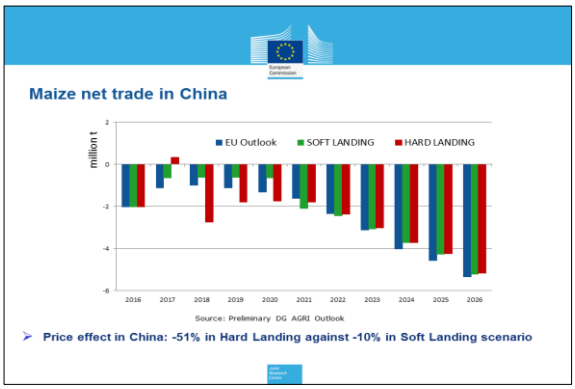


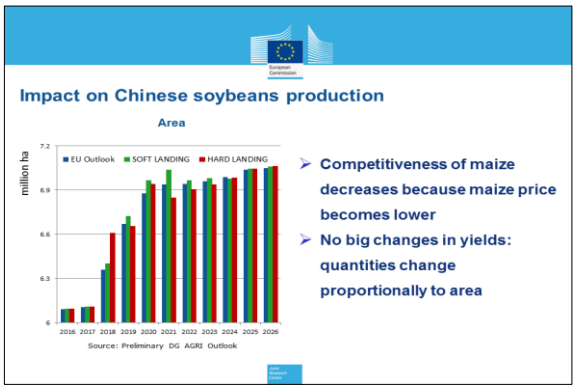


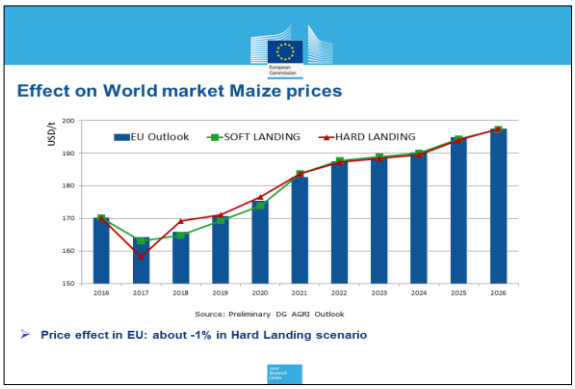
Simone Pieralli (JRC)

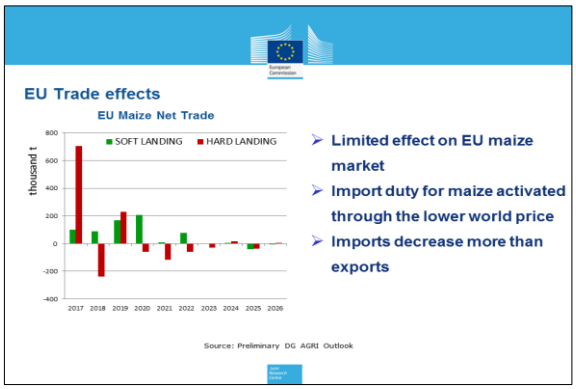


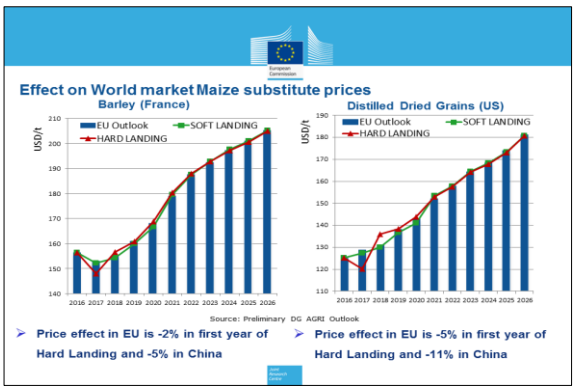












Louisa Follis (Bunge)

Slides not for distribution

Li Ganqiong (CAAS)

Workshop on the Middle-term Outlook for the EU Agricultural Commodity Market

Li Ganqiong

Agricultural Information Institute of Chinese Academy of Agricultural Sciences (AII of CAAS)

Brussels, 25-26 October 2016

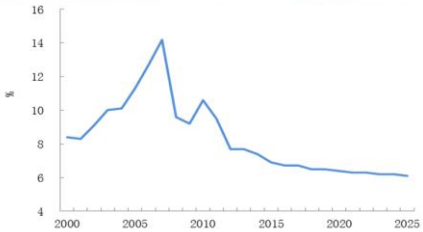
Some specific comments on the results

- It is not very clear that exchange rate (USD/EUR） will depreciate more than that of 2015 edition.
- It is not very optimistic for the crude oil price in the next decade.
- The projections of total wheat production is changed obviously compared with that in 2015. What is the reason?
- Few information about major trading partners could be found in the balance sheet.
- It is shown that the imports for maize of China is more than 3 million tons in 2015/16 market season (Oct/Sep).

Macroeconomics and Policies of China in Next Decade

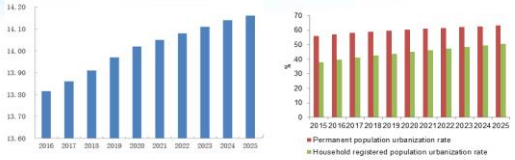
- Under the guiding of new development concept of innovation, coordination, green, open and sharing, China economy will still maintain a mid-high growth rate, although it is much lower than that of last ten years
- The income of urban and rural residents will continue to grow rapidly.
- China population will continue to grow and reach a new level of about 1.42 billion in 2026. The urbanization will accelerate and the proportion of urban residents will reach 64.5%.
- The agricultural labor force will remain stable with a slight decrease.
- CPI will rise modestly and exchange rate for RMB will remain stable with slight depreciation trend.

China will maintain a mid-high growth rate



- The GDP of China will grow annual at the rate of 6.2% in next decade, lower than 9.6% of last ten years. But the income of urban and rural residents will continue to grow rapidly.

The trend of population in China

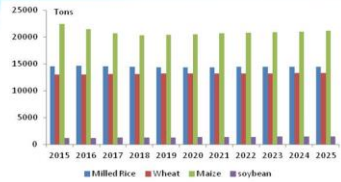


- China began to comprehensively implement the two-child policy since January 1, 2016. In the future ten years, China's total population will continue to grow.
- Population of China will reach 1.4 billion by 2020 and about 1.42 billion by 2026.

The present status and future developments of agricultural market in China

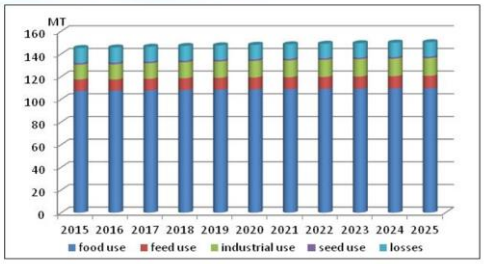
- Supply and demand for rice and wheat will maintain a basic balance due to the government's requirements of absolute security for food grain.
- Sown area of maize will reduce obviously. With the structural supply-side reform for maize in the sickle-shaped producing area, maize sown area will substantially reduced 50 million acres (3.33 million ha) in the future five years.
- Oilseed production will recovery to grow in next decade.

Cereals and Oilseed Production in China

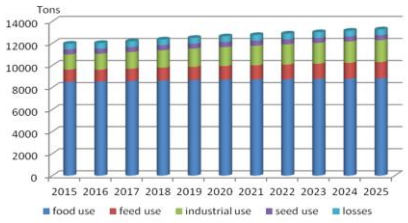


- In 2016, the paddy rice sown area will remain stable with slight growth, and the wheat sown area will remain stable with a slight decline. Maize production is forecast to be 214.5 million tons in 2016, down by 4.2% over 2015.
- Affected by maize production policy, it is forecasted that the soybean area will recover and grow to 107.3 million acres (7.15 million hectares) in 2016, and the production will reach 12.9million tons.

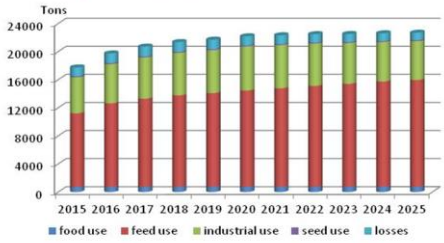
Rice consumption will continue to grow steadily



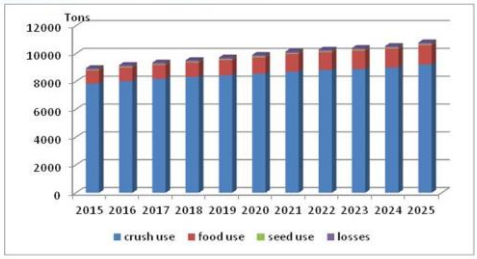
Wheat consumption will grow steadily in next decade



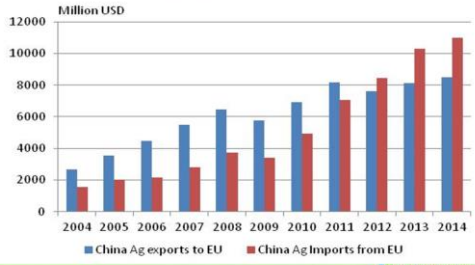
Maize consumption is closely tied with the development of inner macroeconomics



The growth of soybean consumption will slow down, but crushed use contimues to increase

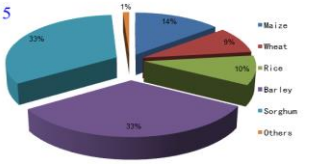


It began to appear trade deficit in Ag trade between China and EU



Imports of grain in China increased greatly in 2015

- imports in Jan/Dec of 2015
  - rice: 3.38MT
  - Wheat: 3.01MT
  - Maize： 4.73MT
  - Soybean: 81.69MT
  - Sorghum：10.70MT
  - DDGs：6.82MT
  - Barley: 10.73MT



However, imports of grain in China decreased obviously in 2016 compared with that in 2015

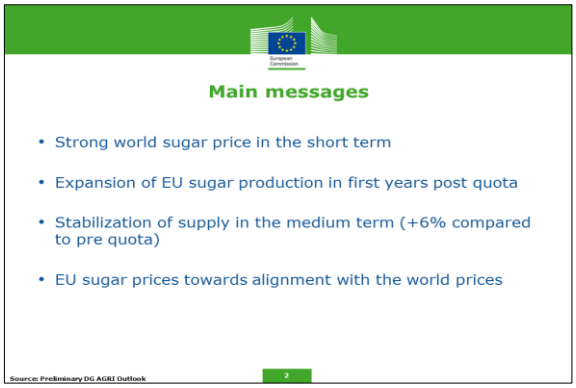
- Jan/Sep in 2016 according to the data from MOA of China
  - Rice: 2.56MT
  - wheat: 2.89MT
  - Maize: 2.98MT
  - Sorghum：5.68MT
  - DDGs：2.70MT
  - Barley: 3.86MT
  - Soybean: 61.19MT

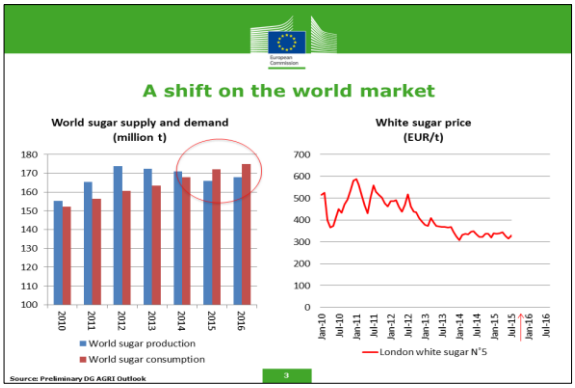
In the future

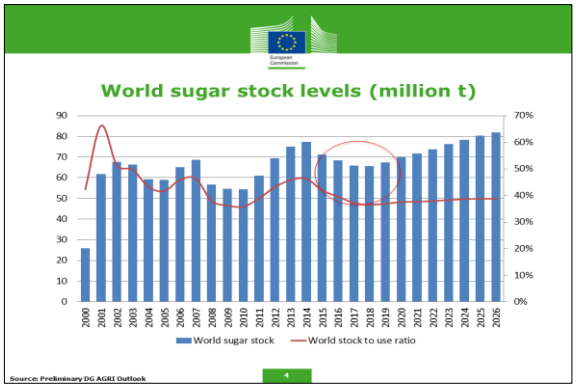
- Integration and interaction between China and international market will be strengthened, and agricultural import may appear to increase in term of both varieties and import origin.
- China will pay more attention to the balanced use of domestic and international resources and markets, and the scale of agricultural trade will further expand.
- In the future, the resource-intensive import for oilseeds, fruits, meats and dairy products will expand from the traditional Americas, Australia, Southeast Asian countries to Central Asia, Australia and European countries.

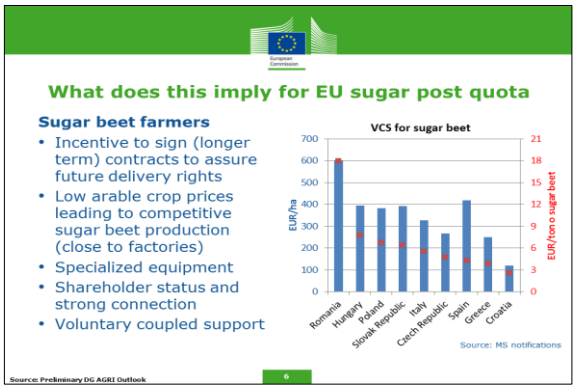
Session: Sugar

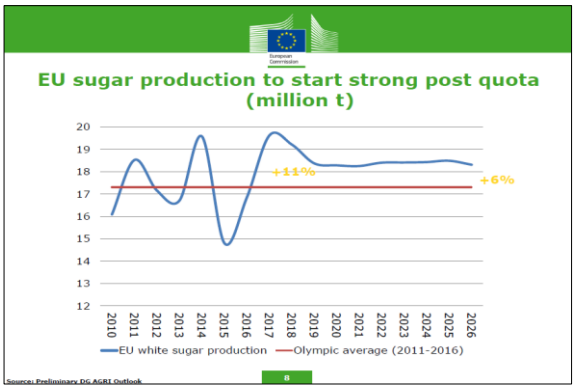
Koen Dillen (DG AGRI)

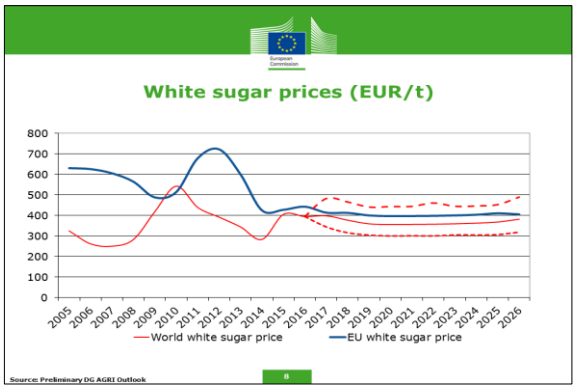


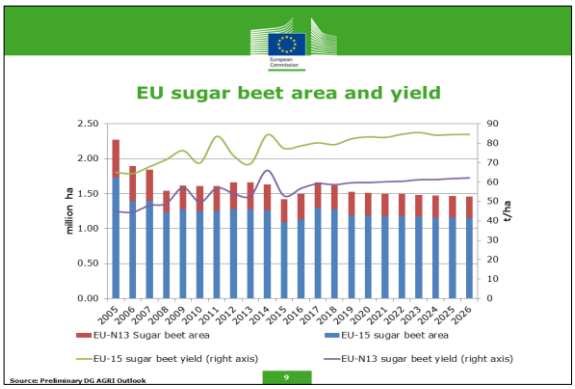


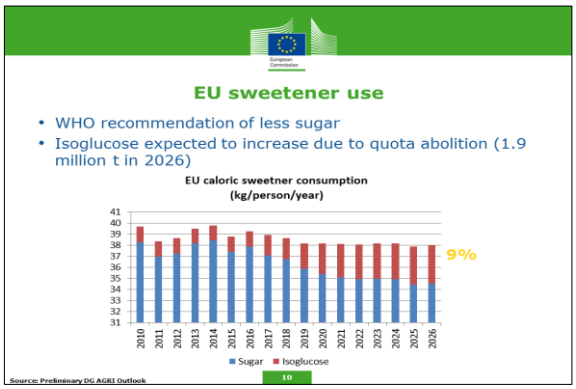


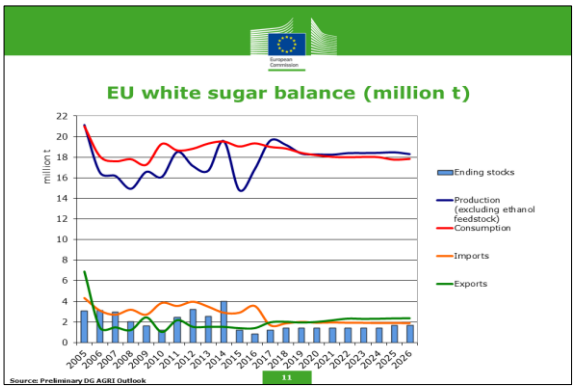


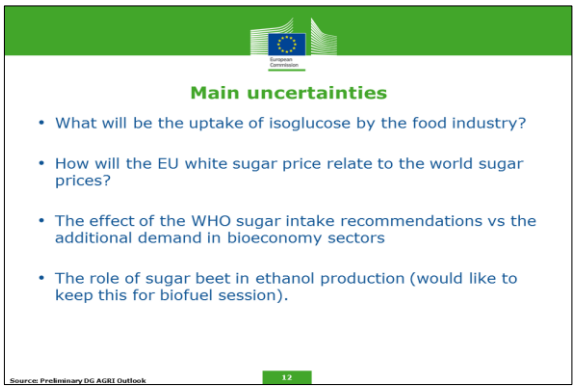




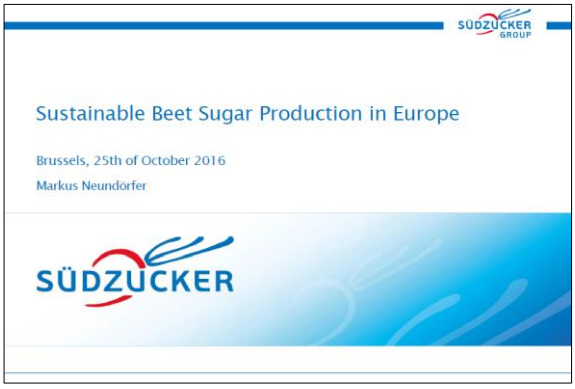


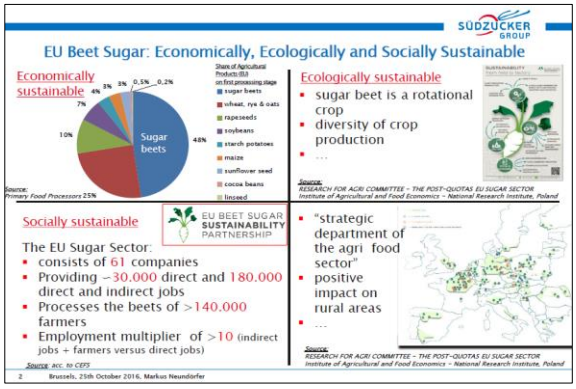


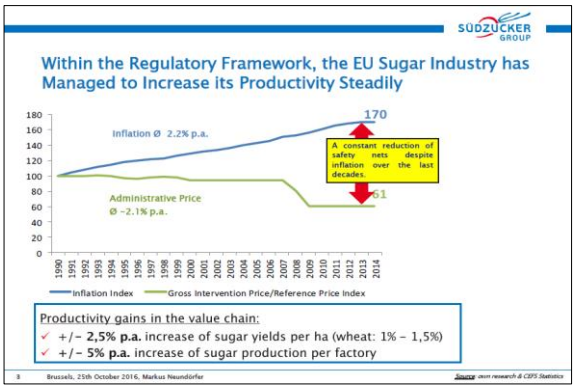


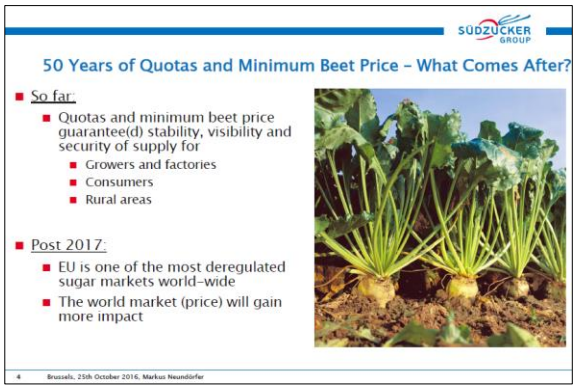


Markus Neundörfer (Südzucker)









Studies: EU Commission/OECD Agricultural Outlook

Common sense post 2017:

⇒ EU-production, long run:
- ⇒ Little increase

⇒ EU-exports:
- ⇒ Moderate increase

⇒ EU-prices:
- ⇒ Above world market prices

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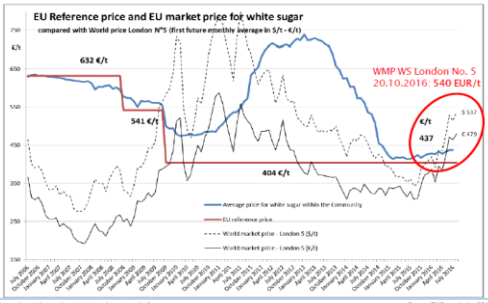
EU Sugar Prices Currently Lower than WMP Level



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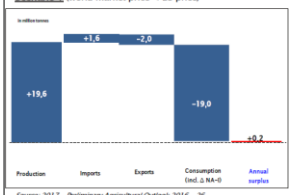
Source: EU Commission 29.09.2016 Dow Jones

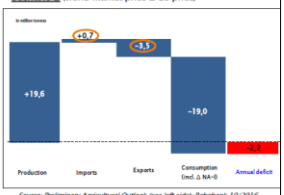
Possible Scenarios for the EU Sugar Market Post-2017

Scenario 1 (world market price < EU price)



Source: 2017 – Preliminary Agricultural Outlook 2016 – 26

Scenario 2 (world market price ≥ EU price)



Source: Preliminary Agricultural Outlook (see left side); Rabobank 10/2016

⇒ Post 17: More exports, less imports than expected?

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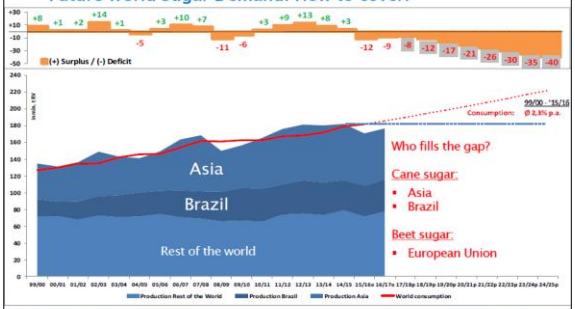
Future World Sugar Demand: How to cover?



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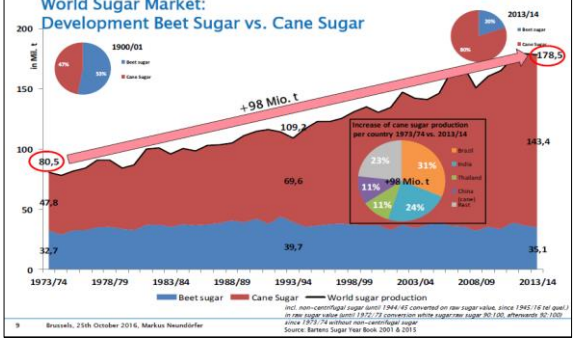
Source: own research on basis of Bartens, F.O. Licht, ISO, LMC

World Sugar Market: Development Beet Sugar vs. Cane Sugar



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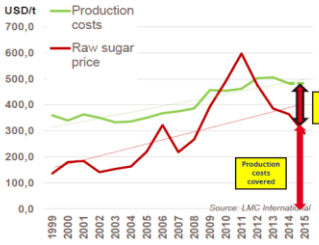
Source: Bartens Sugar Year Book 2001 & 2015

Real Cane Sugar Production Costs (Weighted World Average) vs. World Market Price for Raw Sugar (NY No. 11)



- Efficiency matters, but…
  - Raw Sugar world market price just covers part of the production costs
- Also…
  - Governmental actions
  - …

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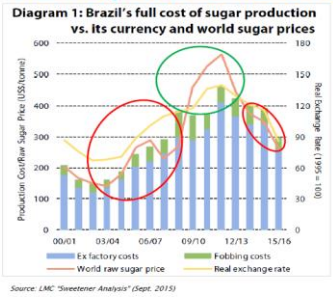
Source: CEFS

Brazilian Sugar & Ethanol: Prices do Often Not Cover Full Costs



Source: LMC "Sweetener Analysis" (Sept. 2015)

⇒ Mostly, world market prices do not cover Brazilian full costs of sugar production

⇒ Sugar and Ethanol are produced in the same plant (> 90% of capacities)

⇒ Mostly, Brazilian ethanol prices do not cover Brazilian full cost of ethanol production neither

See also Source: F.O.Licht's "International Sugar and Sweetener Report", Vol. 148, No. 7 / 04.02.2016

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Governmental Support Matters: Regulations Worldwide

But the world sugar market is a residual 'dump' market for surplus sugar, distorted by the policies of the governments of the major producers and exporters

Support measures	Brazil	India	China	Thailand	USA	Mexico	Australia	Indonesia	Guatemala	Colombia	S. Africa	EU (post 2017)
Transparent support												
Domestic Market Controls	–	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	–
Import Controls	✓	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓
Export Support	✓	✓	–	–	✓	–	✓	–	✓	✓	✓	–
Non transparent support												
Direct Financial Aid	✓	✓	–	✓	✓	✓	✓	✓	–	✓	–	–
Indirect long term support	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Concessions												
Preferential access												
To emerging and developing countries	–	✓	–	–	✓	–	–	–	–	–	–	✓
Full market opening to least Developed Countries (LDCs)	–	–	–	–	–	–	–	–	–	–	–	✓

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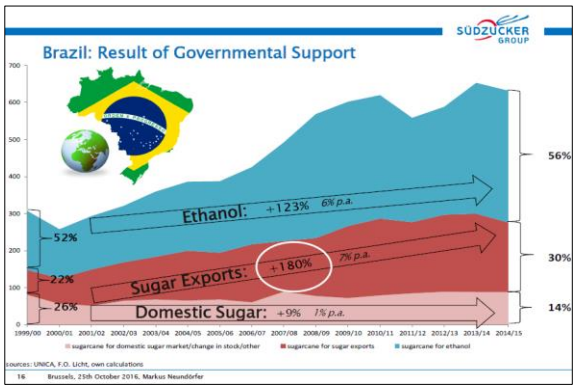
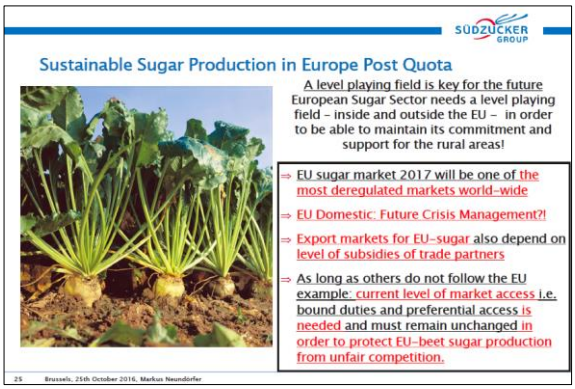
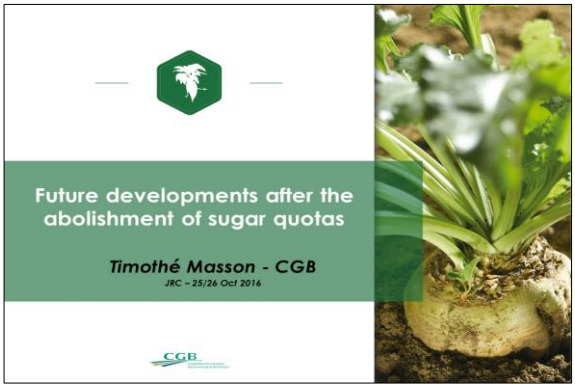
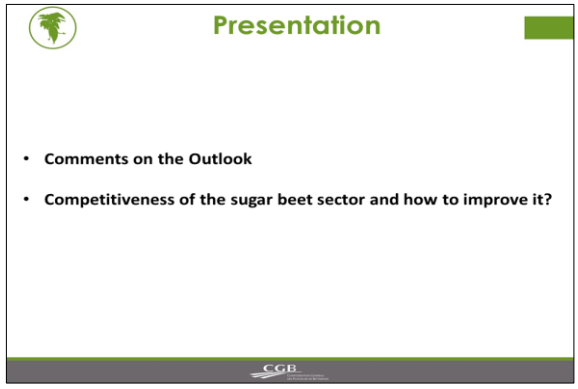
Source: CEFS; own research

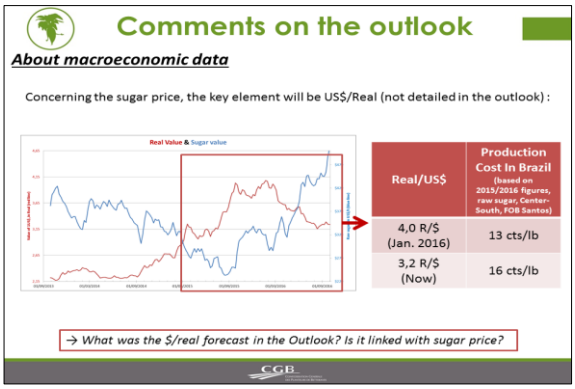


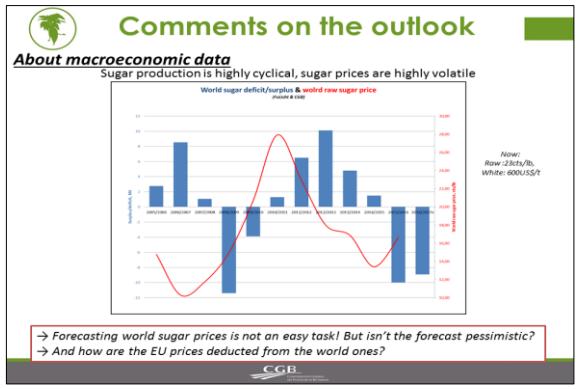


Timothe Masson (CGB)









Comments on the outlook

About consumption *(seen to decrease to 17.8Mt in the forecast)*

In the Outlook, the information includes all kinds of consumption, without details :

- Sugar food consumption
- Import/Export balance in processed products
- Industrial uses of sugar
- Bioethanol

Comments on the outlook

About consumption

In the outlook, the information includes all kinds of consumption , without details :

- **Sugar food consumption**
- **Import/Export balance in processed products**
  - Up to now, food consumption is calculated (not measured) by the Commission
  - Without a clear study of the different uses of this sugar (food, beverage, direct use, etc.) it is almost impossible to make forecasts, especially with the possible impact of health concerns (sugar taxes, etc).
  - Concerning isoglucose, we have almost the same forecasts than the Outlook (from 0.7Mt to 1.4-1.7Mt)

→ We expect that the only decrease in consumption will come from isoglucose development (sugar food consumption to decrease from 16.5 Mt to 15.5Mt)

→ But we can't conclude without ***a study on the different*** *uses of sugar for food in the EU!*

Comments on the outlook

About consumption

In the outlook, the information includes all kinds of consumption, without details :

- **Industrial uses of sugar**
  - With the development of green chemistry (PLA, bioplastics), we can estimate a higher use of sugar in this sector : from 0.7Mt to 1.0Mt ?

→ But ***oil prices in the outlook can limit*** *this expansion*

Comments on the outlook

About consumption

In the outlook, the information includes all kinds of consumption, without details :

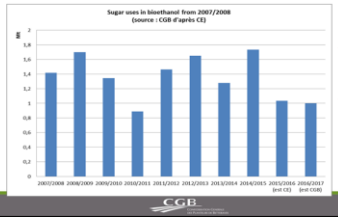
- **Bioethanol**
  - Bioethanol should increase if we consider the objective of 10% renewable energy in transport in 2020, including 7% of biofuels, we will need 75Mhl in 2020 (+20Mhl from now). If the share of sugarbeet is still around 25% (but we consider this share will increase), then we may use 2.0Mt of sugar for bioethanol (from 1.4Mt now)
  - But the recent comments of the Commission, trying to replace 1G by an inexistant 2G, can reverse this trend... Why replace 1G, which respects all the environmental standards and does not compete with food?
  - The estimate here is without new FTAs – and with the remainder of the US antidumping rights

Comments on the outlook

About consumption

In the outlook, the information includes all kinds of consumption, without details :

- **Bioethanol**
  - With the end of quotas, bioethanol can be used, even more than now, as a buffer. It will highly depend oil prices oil vs. sugar prices. But now and expected in the outlook, prices are far too low to be encouraging



±0,8Mt

Comments on the outlook

About consumption

In the outlook, the information includes all kinds of consumption, without details :

- **Bioethanol**

→ Bioethanol should increase as should the sugarbeet proportion, but it will be highly ***dependent on EC policies, FTAs, antidumping rights with US***

→ Low oil prices, laid in the outlook, may minimize the ***buffer role*** *that bioethanol can play in a post-quota era.*

Comments on the outlook

About consumption

In the outlook, the information includes all kinds of consumption, without details :

- Sugar food consumption
- Import/Export balance in processed products
- Industrial uses of sugar
- Bioethanol

→ All included (and without isoglucose), but mainly depending on bioethanol uses (seen as stable in the outlook), ***a stable total consumption should be an attainable objective***

→ But a ***real study on the current uses of sugar in food*** *(food, beverage, direct use, etc.) is needed to conclude*

Comments on the outlook

About imports *(seen to decrease to 1,7Mt in the forecast)*

We based our estimation on :

- ACP/LDCs countries will decrease to about 2Mt (or worse?)
- CXL imports will not no longer be competitive
- FTAs will make the difference (0.7Mt, **not including new openings** (Mercosur, Thailand, Australia, etc.)

→ **Without new openings**, our views are higher than the Outlook (about 2.5Mt). But the evolution from year to year will **depend on the difference between European prices and world prices, and white premium** (not detailed in the Outlook)

→ **The Brexit effect stronlgy needs to be estimated** as it can completely change the point: 20% to 35% of the imported sugar enter through UK (owning 25% of the refining capacity of Europe). Will UK try to find new TRQs? And what will happen with current TRQs : will they remain stable for EU27, or will they be reallocated ?!

Comments on the outlook

About exports *(seen to increase at 2,4Mt in the forecast)*

From the current exported volume (1.35Mt due to WTO), where can EU export?

- In Middle-East/North Africa (already the main partner of EU), exports can reach 2.5 to 2.8Mt
- In West Africa, the annual average deficit in white sugar, in 2009-2013, is 1.6Mt. This region is a traditional partner of EU

→ 2.7 to 3.0Mt can be a realistic estimate, but **depending on world prices vs. European prices and white premium (to be detailed)**

→ **Tarif rates at destination need to be followed**, importers will want to preserve their new refineries.

→ And here again, **Brexit can change all the scheme**!

Comments on the outlook

About production *(seen to increase at 18.5Mt in the forecast)*

The outlook only gives sugar price, not sugarbeet price…

What will it be?

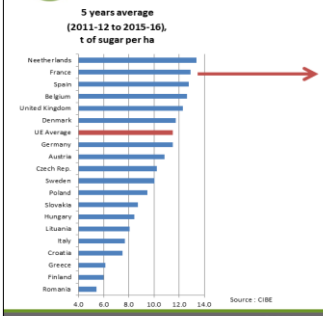
Isn't it time to speak about competitiveness?

Improving competitiveness through yields

Almost twice as much sugar per hectare in 25 years, thanks to:

- **Climate change :** warmer spring/summer in French beet growing areas *(+1.5°C between 1st March and 15th June from 1986 to 2015).*
- **Early sowing:** growers are now sowing 10 days earlier than in the 1990's in France
- **Genetics :** seed companies have always invested in Research & Development. And big investments are made (France : AKER project, to double yield improvement in 2020)

Improving competitiveness through yields



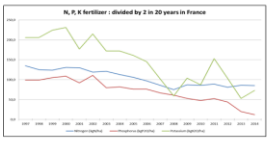
But, in France, seeds already represent 30% of the variable costs of production

Growers complained in the last 2 campaigns, when sugarbeet prices were low

***shouldn't we fear seeds as a buffer cost**, and with what impact on yield?*

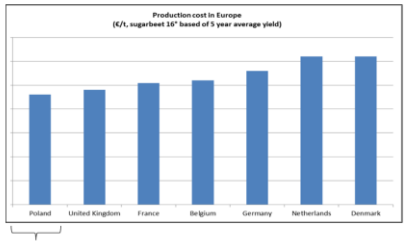
Improving competitiveness through fertilizers and treatments?

What has been done in France…



→ *It will be hard to do better… And* ***this cost will certainly increase*** *in future (cf neonicotinoid issue in France…)*

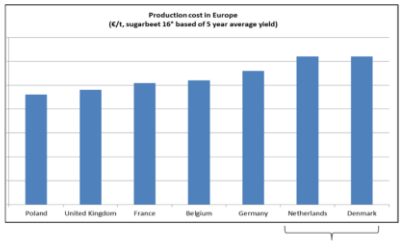
Competitiveness of the sugar beet sector



Will yield be improved faster that work and land costs will increase ?

Source : LMC

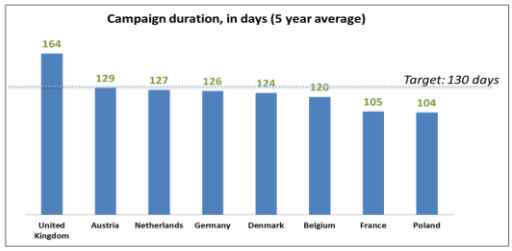
Competitiveness of the sugar beet sector



Land remains very expensive

Source : LMC

And what about sugar factories competitiveness?



→ *If all the factories work 130 days, then a production at 18,7Mt can be sustainable… But at what sugarbeet price (no data available in the outlook) ?*

And what about sugar factories competitiveness?

- Little data is available about production costs in factories.
- We know the best ones are the one using charcoal: what durability? What will the carbon cost will be?
- So, considering (in theory) the factory production costs remain roughly stable, and that the value sharing between factory and grower remains unchanged (which does not seem the case in most of the countries, not in favor of growers), then a sugar price at 404€/t represents a sugarbeet price at 25.40€/t (current case in France).

→ *At current level of competitiveness, **on EU average**:*

- ***With EU price between 400 and 450€/t** (slightly higher than in the outlook) : only few countries earn money and sugarbeet growers will be tempted to change their crop (depending on other crop prices)*
- ***With EU price between 450 and 500€/t** : the majority of countries can expand campaign duration to around 130 days, and a sugar production around 18-19Mt can be reached*
- ***With EU price above 500€/t** : famers can extand their production*

Competitiveness of the sugar sector

European prices will become more and more volatile… how will the sector adapt?

→ *The resistance of the sugar sector will depend on:*

- ***Risk management by the sugar factories**, with growers (thanks to futures)*
- ***Risk management for the growers** (insurances, mutual funds…)*

Session: Biofuels

Koen Dillen (DG AGRI)

Prospects for EU biofuel Markets 2016-2026

25 October 2016

PRELIMINARY BASELINE

DG Agriculture and Rural Development in collaboration with the Joint Research Centre European Commission

Main messages

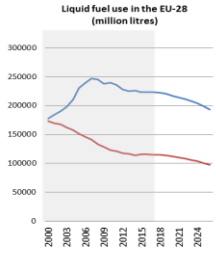
- The projections assume a policy status quo post 2020
- Biofuel use expected to increase towards 2020 but to remain below the RED targets
- Overall gasoline and diesel use to decline post 2020 following stringent emission rules

Source: Preliminary DG AGRI outlook 2

EU biofuel demand and supply is policy driven

- RED: 10% of transport energy
- FQD: reduce GHG intensity of transport fuels
- "ILUC" directive: 7% cap on first generation biofuels
- Very slow progress towards RED
- Policy uncertainty post 2020

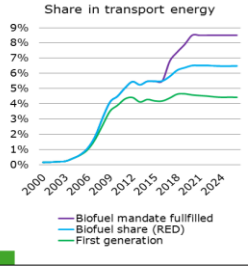
"The Commission already indicated that food-based biofuels have a limited role in decarbonising the transport sector and should not receive public support after 2020"



Source: Preliminary DG AGRI outlook 3 Source: Poles reference scenario

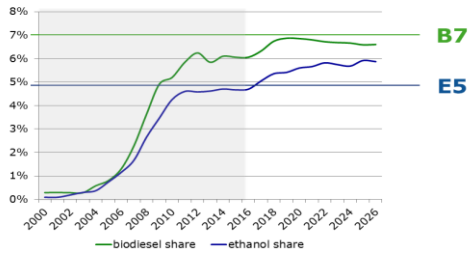
Assumptions for the DG AGRI outlook

- Policy status quo post 2020
- By 2020 about 6.5% (RED accounted) share of biofuels in the transport sector
- The remainder (if filled) by electricity and other renewable energy sources or by increased accounting rules
- Complemented by uncertainty scenario



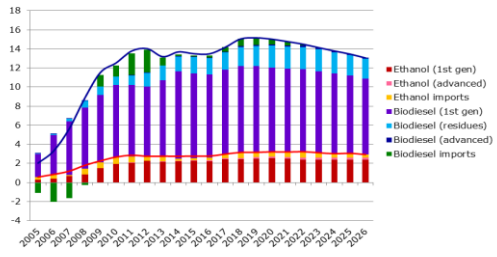
Source: Preliminary DG AGRI outlook 4

EU Biofuel share in volume

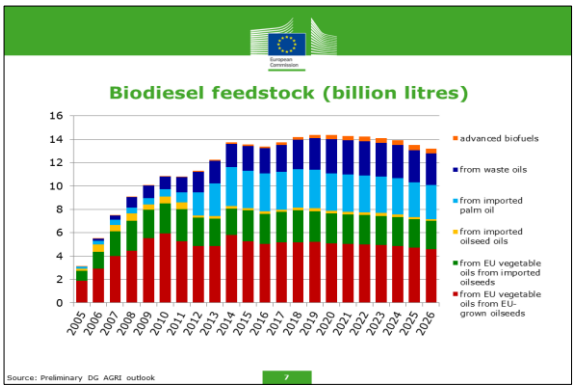


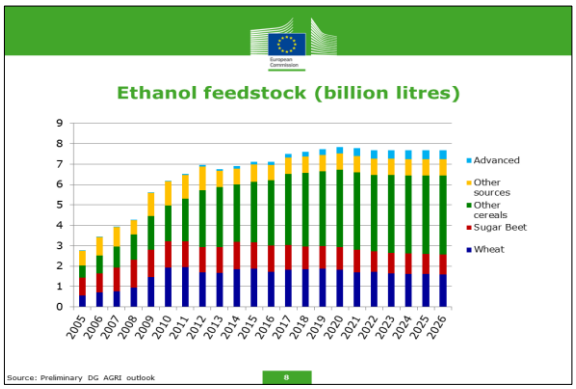
Source: Preliminary DG AGRI outlook 5

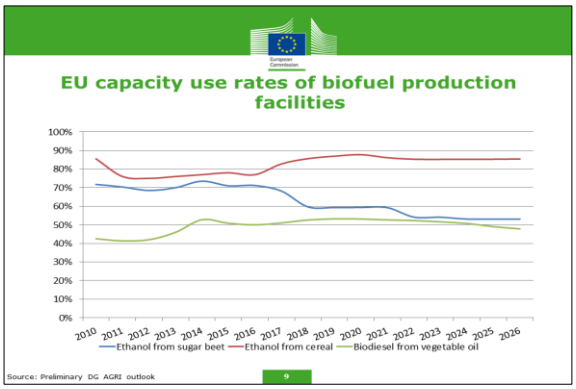
EU biofuel consumption (million t.o.e.)

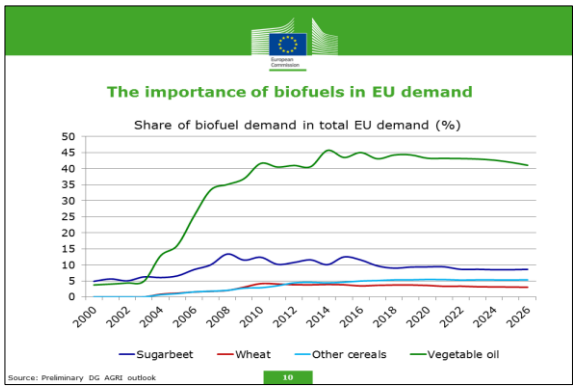


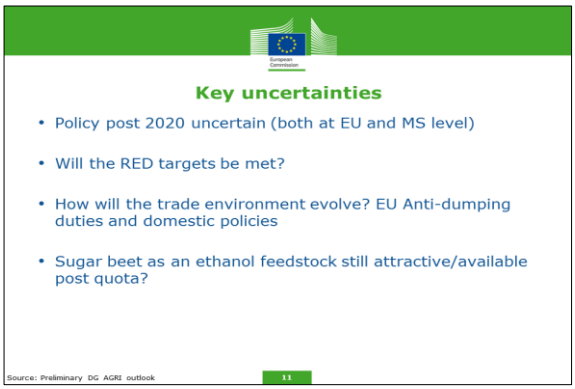
Source: Preliminary DG AGRI outlook 6



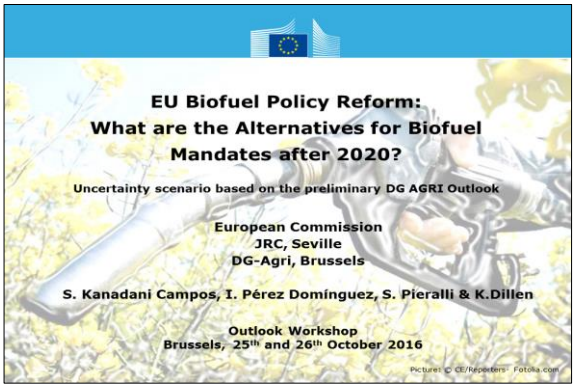


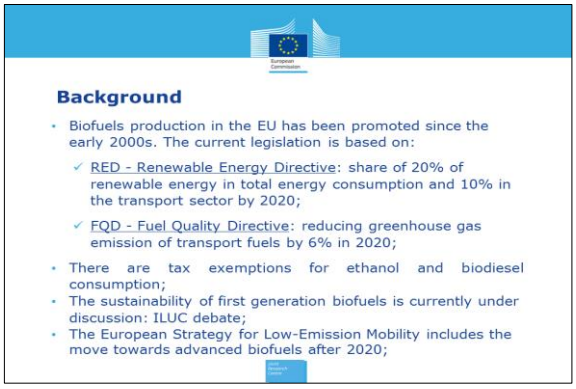






Silvia Kanadani (JRC)

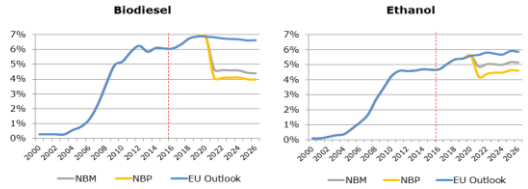




Scenarios

- Analysis of the removal of the EU food-based biofuel mandate and the effects of the elimination of the tax exemption for biofuels after 2020. This is done by means of two counterfactual scenarios:
  - ✓ **NBM ("no biofuel mandate")** scenario: elimination of the 1st generation biofuel mandate after 2020;
  - ✓ **NBP ("no biofuel policy")** scenario: elimination of the 1st generation biofuel mandate plus the removal of the biofuels tax exemption after 2020;
- The tax rates considered for the EU are not MS-specific;
- The objective of this study is exploratory and by no means represents a concrete policy proposal

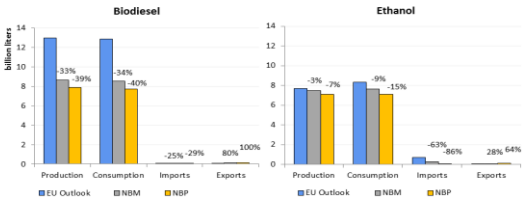
Share of biofuels in total fuel consumption



Note: shares in volume, not in energy equivalents.

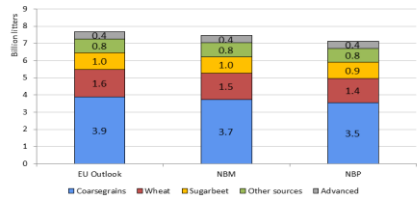
Source: Preliminary DG AGRI Outlook

Larger production and consumption impacts for biodiesel than for ethanol



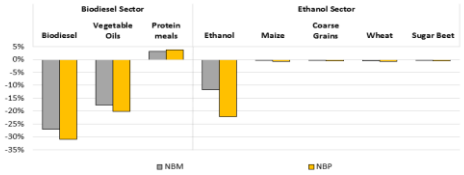
Source: Preliminary DG AGRI Outlook

Coarse grains continue being the main feedstock for ethanol production



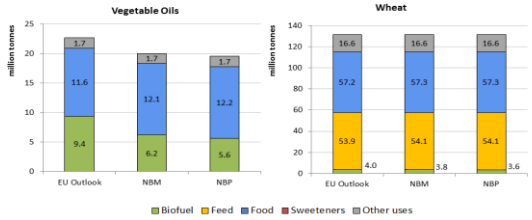
Source: Preliminary DG AGRI Outlook

EU Feedstock prices change considerably for vegetable oils, no major changes on the ethanol side



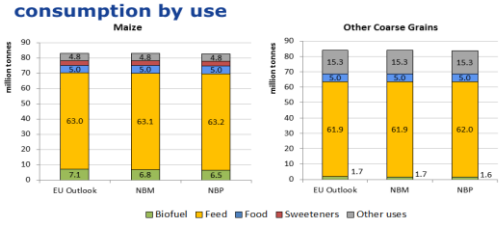
Source: Preliminary DG AGRI Outlook

Less consumption of vegetable oils in the EU



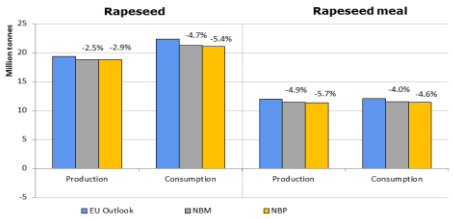
Source: Preliminary DG AGRI Outlook

Almost no effects in the ethanol feedstock consumption by use

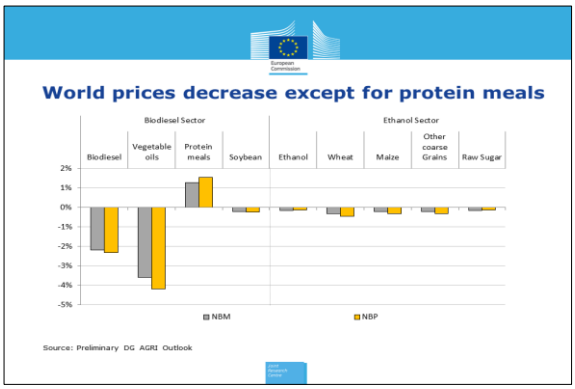


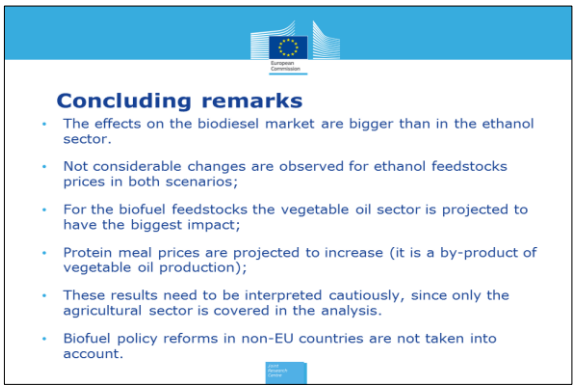
Source: Preliminary DG AGRI Outlook

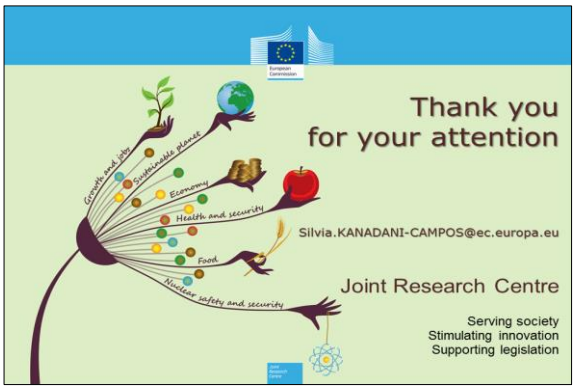
Impacts on the rapeseed sector



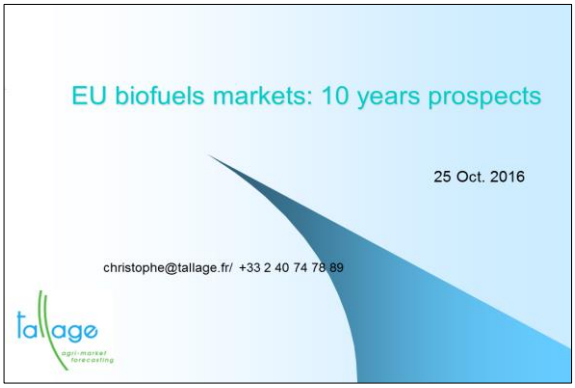
Source: Preliminary DG AGRI Outlook

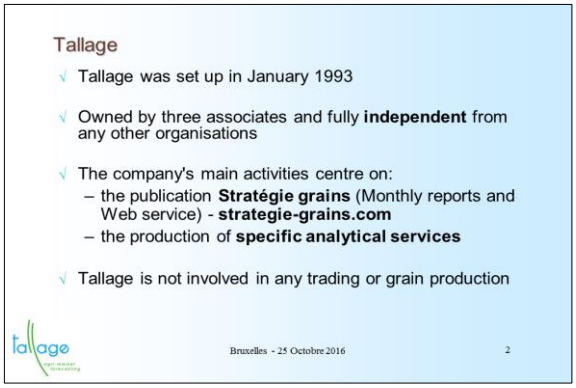


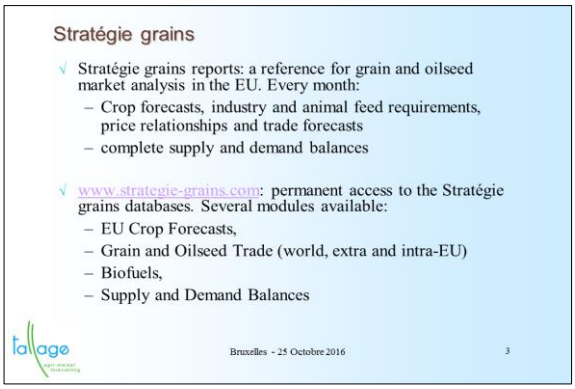




Christophe Cogny (Tallage)







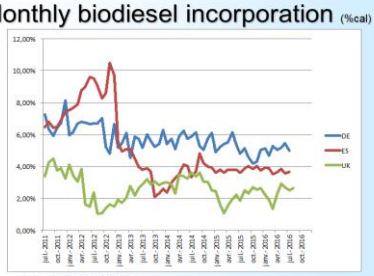
Example of national policies

- √ Germany sets its own rulebook towards GHG saving ("FQD like")
- √ France sticks to 7 % incorporation target ("RED like")
- √ Spain should increase mandates moderately (to 5% next year up to 8.5% by 2020), but seems too ambitious compared with actual biofuel share
- √ UK ? .. Status quo likely for domestic policy, change in tariffs in coming years?

Low crude oil prices : consequences

- √ Biodiesel share decreases vs. diesel (5.1% in Jan/July 2016 in Germany against 5.4% last year)
- √ Higher diesel consumption mitigates lower % of biodiesel (+7% diesel consumption in DE this year)
- ➢ Higher biodiesel consumption to rely on changes in legal framework (mostly Germany with increase in GHG savings to 4% from 2017)

Monthly biodiesel incorporation (%cal)



*source: BAFA, CORES, UKTrade

Medium-term tentative forecasts (Mtoe)

Consumption (Mtoe)	2005	2010	2015	2020	2021	2022
Gasoline	115,2	97,4	83,3	81,0	79,7	79,3
Bioethanol	0,5	2,7	2,8	3,3	3,3	3,3
Bioethanol content in gasoline	0,5%	2,8%	3,3%	4,0%	4,1%	4,1%
Diesel	183,2	206,4	212,5	217,9	218,6	219,2
Biodiesel	2,3	10,4	10,4	11,6	11,6	11,7
Biodiesel content in diesel	1,2%	5,0%	4,9%	5,3%	5,3%	5,3%
Biofuels content in fossil fuels	**0,9%**	**4,3%**	**4,4%**	**5,0%**	**5,0%**	**5,0%**

Source: Strategie Grains

Thank you for you attention!

christophe@tallage.fr +33 2 40 74 77 89

Matthew Stone (PRIMA)

PRIMA

The EU Biofuel Policy Cliff

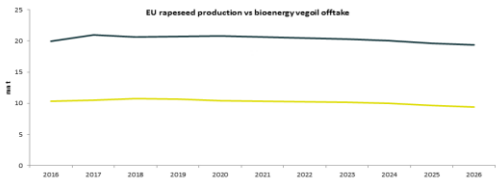
Matthew Stone
Brussels
October 2016

PRIMA

PRIMA

Outlook assumptions

Oilseed/vegoil demand steady through 2026 as a biodiesel input

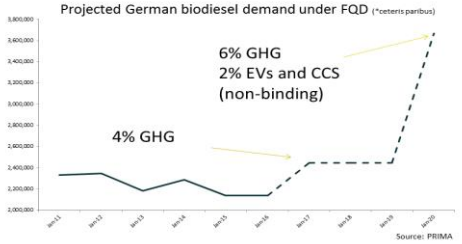


Source: EC

PRIMA

Problem: *through 2020, set EU policy dictates demand will grow, national crop caps loom*

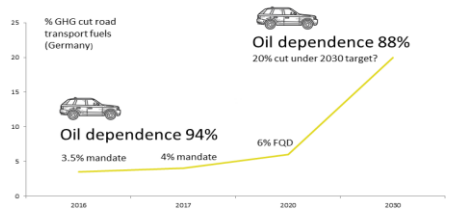
Projected German biodiesel demand under FQD (*ceteris paribus)



Source: PRIMA

PRIMA

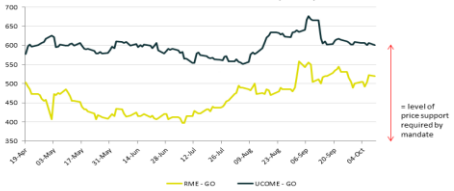
Post 2020: *C02 ambitions in transport are huge*



PRIMA

Problem: *Post-2020, draft policy demands end to crop-based supports*

RME & UCOME FOB ARA vs Gasoil (USD/mt)



PRIMA

Knowns and unknowns post-2020

Type	Policy Pillar pre-2020	Policy Pillar post-2020	Problem
Crop-based biofuel	Can supply up to 7% of road fuel. GHG savings of over 60% recognised.	No support post-2020	Leaves a gaping supply hole, demand destruction for EU crops, supply chain job losses
Advanced biofuels	Double count or GHG-based monetisation	Should replace crop-based biofuels post-2020	Technology is still AWOL. Waste is expensive and scarce. Fraud risk.
EV	Tax breaks	Tax breaks	Lack of infrastructure, grid stress, range anxiety, not suitable for HGVs or aviation

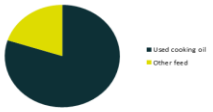
Source: PRIMA

PRIMA

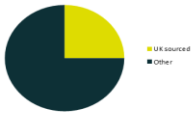
Europe is already building a huge waste short

UK's waste mandate is import dependent at a 4.75% blend

UK biodiesel make-up at 4.75% mandate



Share of UK UCO market by origin %

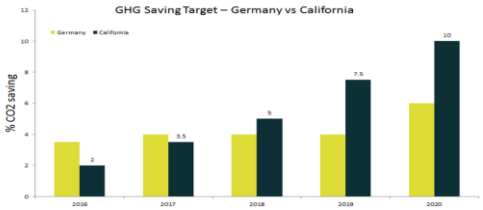


Source: UK DfT, PRIMA

PRIMA

Intl competition for low-CI feeds is growing fast

GHG Saving Target – Germany vs California



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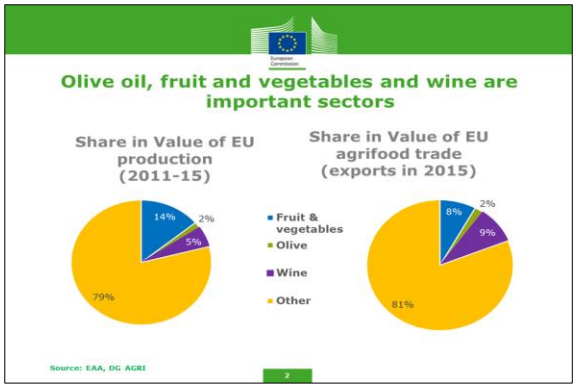
Stay on top with PRIMA

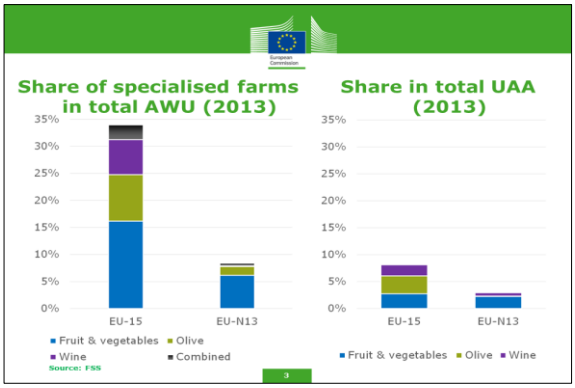
EU Biodiesel
US Biodiesel
Argentinian biodiesel
Veg Oils
International Ethanol
Asian Ethanol
California carbon
Monthly RIN Count

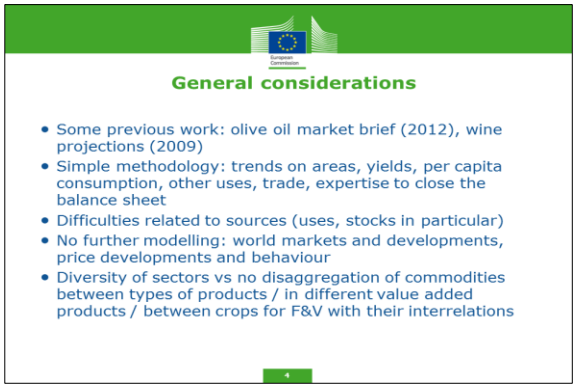
Contact: Patrick.Meister@Prima-Markets.com

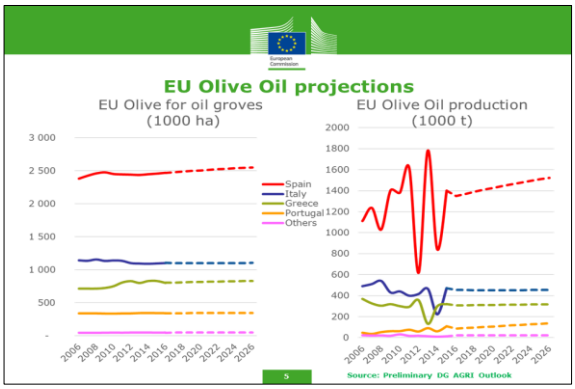
Session: Fruits, vegetables, olive oil and wine

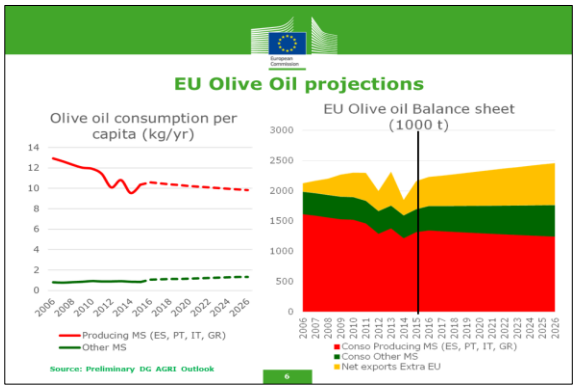
Fabien Santini (DG AGRI)

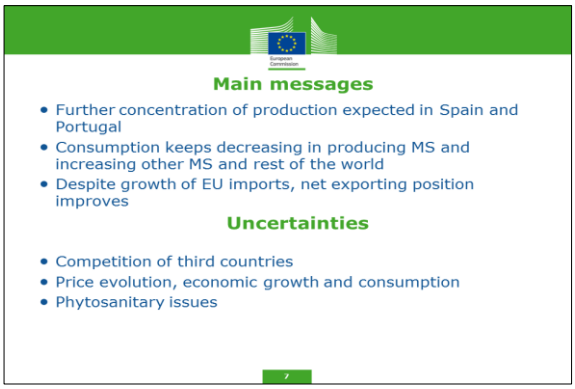


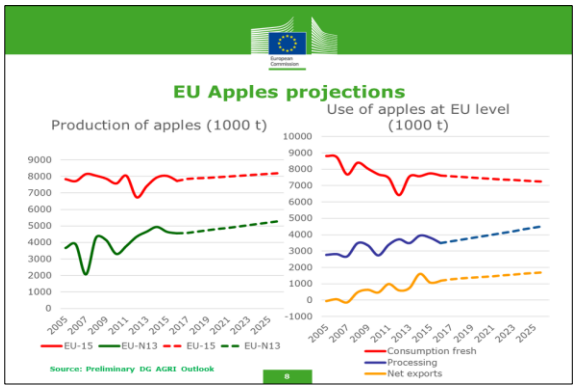


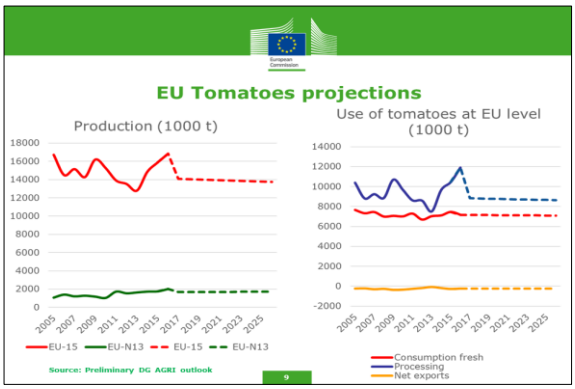


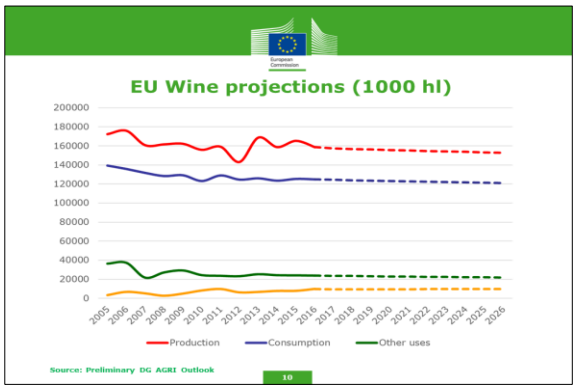


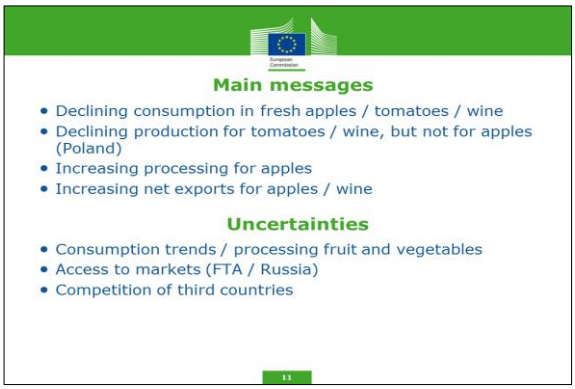


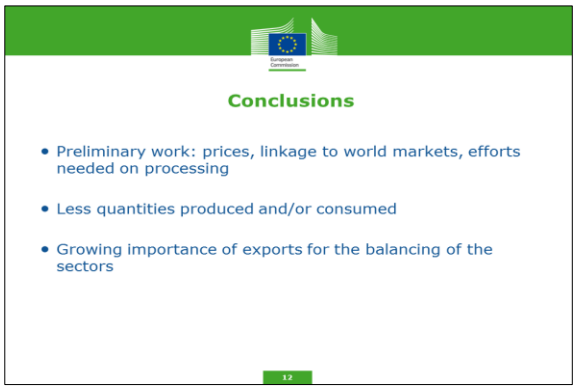




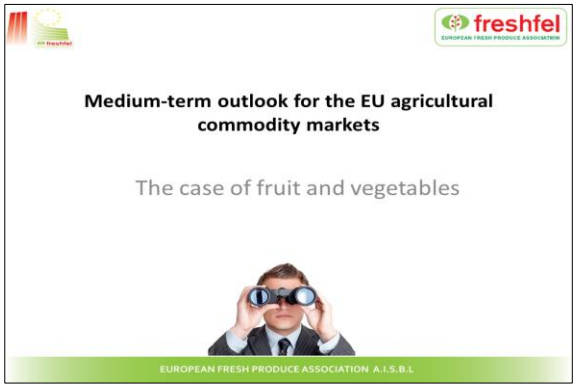


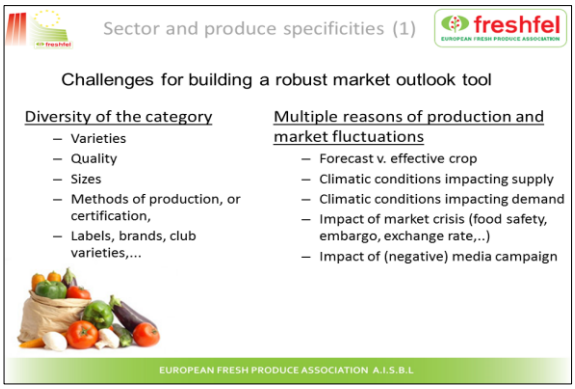


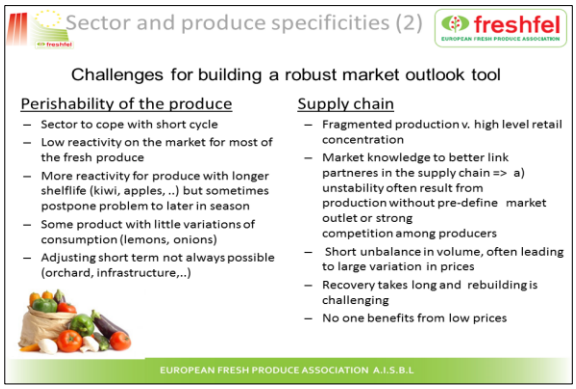




Philippe Binard (Freshfel)







Sector and produce specificities (3)

Challenges for building a robust market outlook tool

- Data privacy
- Complying with competition legislation
- Evolving data (regular update needed)
- Operating in a global market
- Methodology : clear specificatios to allow comparison between sources
- Limited information on Eastern Europe production and markets
- Complexity of analysis :what is in the data? : all the production , production for fresh, (momentum, stage, varieties, packaging , size, production specifications, source, data for export or comprehensive,...
- Reliability of the source: EC COM, private sector, third party, PPP though CDG

Sector and produce specificities (4)

Challenges for building a robust market outlook tool

- Diversity and perishability of F&V often lagging behind EU efforts to consolidate market outlook report available for other agricultural market => welcome the JRC-AGRI initiative
- Difficulties to have good production and market knowledge but => benefits for stakeholders across the chain to have access to information to take the most informed decision with product with short shelflife

Medium-term outlook for the EU agricultural commodity markets

Fruit and vegetables : Instrumentsfor outlook and market knowledge/analysis with a focus on apples

What can be done?

Market and business trends

- Understanding production trends
- Understanding trade trends
- Understanding consumption trends
- Provide a better outlook for the sector and anticipate needed policy changes

Preventing crisis

- Fruit and vegetables given diversity and perishability often lagging behing market report available for other agricultural market
- Improve transparency for more sensitive products such as:
  - Peaches and nectarines and other stone fruit
  - Tomatoes
- If providing information, need to get access to all the elements to evaluate the situation and to avoid wrong conclusions

What is available?

Official sources (production and trade)

- Database such as Eurostat, Comext, Trademap, Faostat => **delays from 3 months up to 2 years depending of database, plus many historical data missing on production at Eurostat level**
- Commission monitoring (TAXUD surveillance for WTO special safeguard clause, bananas threshold, AGRI SIV,...) **=> lack of easy accessibility and transparency**
- GREX for tomatoes, peaches & nectarines, citrus, apples and pears => **based on annual sequence**
- Dashboard : tomatoes, apples, oranges, peaches and nectarines .... => New, good basis
- Several reporting at Member States levels

=> No easy access

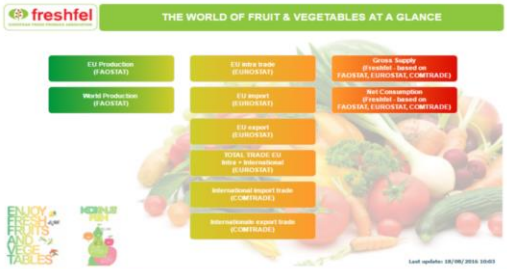
EC Commission dashboard

What is available?

Sector initiatives/sources

- Freshfel: on-line consultation database on EU-global production, trade and consumption trends => for member only
- WAPA: production forecast NH & stocks for apples and pears and SH supply
- AREFLH –EUROPECH : seasonal report on peaches and nectarines, asparagus, strawberries => only for members participating to the schemes
- Citrus: Freshfel/SHAFFE initiative on forecast production and global trade flow
- Private market report: GfK, Kantar => costly and focus on consumption
- Ad hoc business tailor-made monitoring by
  - Products
  - Markets

Freshfel Qlick Fresh tools



Freshfel Qlick Fresh tools

EUROPEAN FRESH PRODUCE ASSOCIATION A.I.S.B.L

WAPA production forecasts

- Elaborated by the representative association in the different MS
- By MS and by varieties
- With additonnal qualitative information
- With 3 update per years => NH data launched in August, updated in November and February
- With extended information beyond the EU (China , USA, EU neighbourhood ....)
- With a forecast for SH based on same parameters
- No short/medium term outlook yet

Prognosfruit

EUROPEAN FRESH PRODUCE ASSOCIATION A.I.S.B.L

WAPA stocks monitoring

- Elaborated by the representative association
- By EU MS+ USA
- By varieties
- Monthly report from December to July
- Avaiable by the 15th month of each month (Dec- July)

Development apple stocks in EU countries (tonnes)

EUROPEAN FRESH PRODUCE ASSOCIATION A.I.S.B.L

Apples outlook

Several factors could influence clarity on forecast and trends:

- Supply
  - Sources and their coverage
  - Role of backyard production
  - Methodologies
  - Information on vareties
- Demand
  - Balance fresh/processed
  - Market balance and promotion initiatives
  - Trade distortions
  - Exchange rate
  - Economic situation
  - Tools such as SFS, Free distribution,....

EUROPEAN FRESH PRODUCE ASSOCIATION A.I.S.B.L

Apples outlook

Production 2014	12.560.001
Import Aug 14-July15	493.668
Export Aug 14-July 15	-1.768.153
Processing	-3.969.000
Total fresh	**7.316.516**
Local sales	4.913.801
Intra trade	-2.402.715

EUROPEAN FRESH PRODUCE ASSOCIATION A.I.S.B.L

Apples outlook

- Current unbalence and low prices will not favour ongoing growth, in particular following Russian embargoes
- Structral changes likely to be needed as well as ongoing vareital repositioning
- Strong impact of climatic conditions: havoc to be more frequent despite efforts of protection
- International trade : depend of several aspects: exchange rate; opening of new markets (SPS) attractiveness of EU market
- Processing trends depend of prices and world market demand
- Impact of market tools (free distribution)
- Consumption

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Conclusions

- Multiplicity of factors and parameters => a granny smith apple is not a pink lady apple
- Many factors influence the prices with regular fluctuation depending of volume, weather, packaging , freshness, category, certification, market, destination,....
- Having main trends is useful but using official data might require analysis and additionnal processing to get it right
- Benefit of transparency

EUROPEAN FRESH PRODUCE ASSOCIATION A.I.S.B.L

philippe@freshfel.org

EUROPEAN FRESH PRODUCE ASSOCIATION A.I.S.B.L

Ad Klaassen (DPA)

Medium-term outlook for the EU agricultural commodity markets tomatoes-fresh

Ad Klaassen, the Netherlands
Brussels October 26, 2016

1. Fruits and vegetables – Tomatoes (1)

- See presentation of Freshfel
- Specific situation on tomatoes
- 25 years ago: one category
- Nowadays: many varieties → →

1. Fruits and vegetables: tomatoes (2)

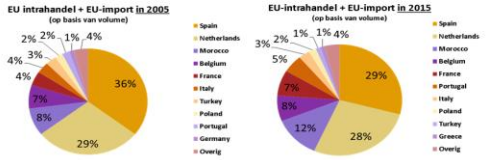
2. Production of tomatoes Tomatoes (1)

- Fresh: 6.813.000 ton
- Processed: 9.795.000 ton
- Total: 16.608.000 ton
- Stable over last 10 years
- This coming years: lower production
  - Less consumption
  - Shift from big to small tomatoes

3. Production of tomatoes fresh (1)

- Spain: 2.2000.000 ton (+/-)
- Italy: 1.000.000 ton (-)
- Netherlands: 800.000 ton (+)
- France: 600.000 ton (+/-)
- Greece: 585.000 ton (-)

4. Trade of tomatoes in EU



5. Market extreme volatile (1)

- Weather: sun, rain, frost, draught
- Consumption:
  * decrease: less kg – higher price
  * quality
  * sustainability
  * assortment
  * price
  * local for local

5. Market extreme volatile (2)

- Politics: Russia – Morocco – new markets
- Perishable products
- Production in glass house / plastic
- Climate change / availability of water

6. Market price (1)

- Supply and demand → price
- Many markets:
  * day to day
  * week
  * month
  * year

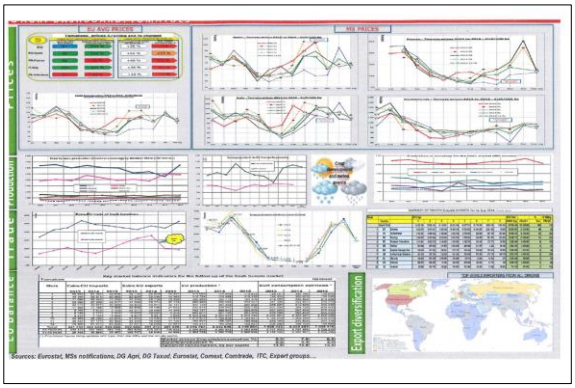
6. Market price (2)

- Many types of tomatoes
- Scope: national / European / world
- EU politics of limited influence

7. Information

- Market analysis of consumption
- Production forecast: EU dashboard: information about history -> trend for future

→ →



8. Market instruments

- Interventions by PO's
- Promotion
- Trade promotion: short chain PO's and retailers
- Setting up PO's to develop counter vailing power
- Competition rules

9. Long term

- Lower production – higher prices
- Upscale of production
- Demand and supply determine price
- EU-policy of limited influence
- Evolution of population (ageing/migration)

Rafael del Rey (OeMv)

Workshop on the medium-term outlook for the EU agricultural commodity markets

Brussels, 25-26 October 2016

Fruit and Vegetables, Olive oil, Wine

Some comments of the future of the EU wine sector

Rafael del Rey
Observatorio ESPAÑOL del Mercado del VINO
Spanish Observatory of Wine Markets

EU workshop
Brussels, 25-26 November 2016

El VINO solo se DISFRUTA con MODERACIÓN

Basic assumption

Supply tends to adapt to demand in the medium range.

There may be imbalances in the short run but, as an average and despite public subsidies and policies which may delay the process, demand imposes its trend.

Therefore…

Basic assumption

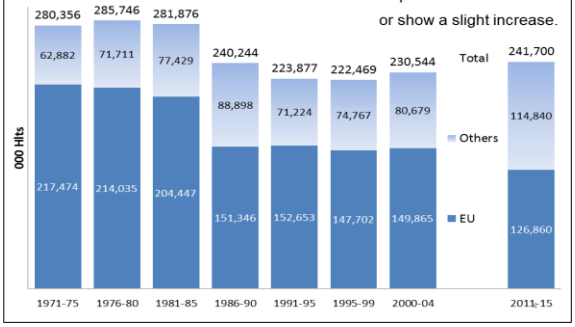
Therefore…

- We should start analysing key factors in the demand side
- And then look at the potential evolution of the supply side.

Prices and structure of the sector will be consequences of the equilibrium between supply and demand

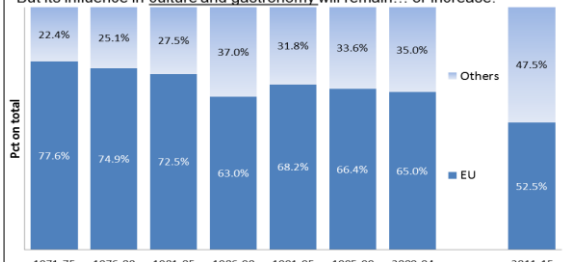
General trends for consumption and trade

World wine consumption will remain stable or show a slight increase.



General trends for consumption and trade

The EU will no longer be the largest wine consumption region
→ Need to adapt products, flavours, packaging, mentalities, trade…
But its influence in culture and gastronomy will remain… or increase.



General trends for consumption and trade

By market /region:

- ❑ World wine imports will increase particularly fast in (i) Asia and (ii) North America
- ❑ Will remain quite flat in the EU region (considering UK)
- ❑ Show erratic movements in other European countries, particularly in Russia, with good potential in other Eastern European countries, depending on their overall economic evolution (and peace)
- ❑ Grow quite fast in the southern hemisphere (LA, Africa and Pacific), although from limited starting figures.

General trends for consumption and trade

By product and type of container:

- ❑ Fresh, lighter wines, particularly sparkling will lead the growth, headed by Prosecco, although quickly followed by the "reaction" in Champagne, Cava and others, probably increasing the gap between (i) a high end for luxury products (in short volumes) and (ii) a lower but higher segment of cheaper easy-to-drink sparkling and semi-sparkling wines
- ❑ A similar gap will also increase in still wines, affecting the way of trading:
  - ❑ Large amounts of relatively cheap wine will be traded increasingly in bulk, particularly to far-away markets where local bottling and distribution will become a key factor for world producers
  - ❑ Other transactions of wine in bulk among producing countries may decline as newcomers get direct access to final consumers
  - ❑ Non-sparkling wine in containers up to 2 litres may also grow but at a smaller rate in volume, although improving average prices targeting a premium market
  - ❑ Must will remain quite flat in both volume and value

General trends for production

If consumption remains globally flat, but changes places, production and structure adapt.

Production – not to forget – depends on (i) surface of vineyards (ii) multiplied by yields (→ reducing surface to eliminate production may not be a good solution)

World wine production has not change that much in recent times:

- ❑ In the last 25 years, wine production has fluctuated between 260 and 290 million hectolitres
- ❑ However, while top EU producers reduced production by 9% since 1991-95, top "new producers" increased it by 27% and "others" also fell.
- ❑ … and this may be the trend in the future if EU producers do not adapt to market trends

World surface of vineyards:

- ❖ Has decreased by 7% since beginning of the 90's to 7.5 million Has
- ❖ With EU top producers losing 825.000 Has (-22%), while "new producers" increased by 303.000 has (36%)
- ❖ Again, this may also be the trend in the future if production, together with trading, does not become much more professionalised in coming years

Prices and structure

The increasing bipolarization between:

i) a large, relatively simple, increasingly fresh and sweet wine consumption / trade, at low prices, mainly sold through large retailers, increasingly bottled at the market of destination after traveling massively in bulk for both economic and environmental reasons; and

ii) a smaller segment of premium wines, in bottle, at relatively higher prices, mostly traded on premise, specialised shops and for gifts

is affecting and will increasingly affect the profitability of wine production (need to chose) and will have a reflection in the production side in terms of size of vineyards, yields, tenure, vertical integration and other key elements, in order to produce

i) either volume – in a very professional and profitable way at the most competitive level – or

ii) high value and quality wines, with great image, low yields, carefully selected to fit the most exclusive, knowledgeable and experienced costumers

Prices and structure

Prices can therefore move both up – for high premium wines – and down – for the most massive and popular wines –.

The key point, though, is how will profitability evolve. And that will very much depend on the adaptation of growers, producers and traders to the changing market trends. The option hast to be taken between (i) extreme competitiveness to produce large volumes of good wine with very low margins or (ii) very high quality products supported by a great image and very specialised distribution capacities… or manage a broader portfolio with examples of both of them.

In terms of structure, this forecast is particularly challenging for medium range wines, produced in regions of relatively high costs and tight regulations which may find it increasingly difficult to compete in anyone of both categories.

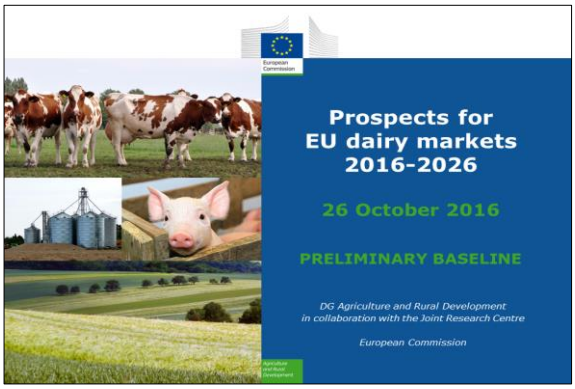
It may also be challenging for non-professionalised growers, as well as for many cooperatives and medium size wineries.

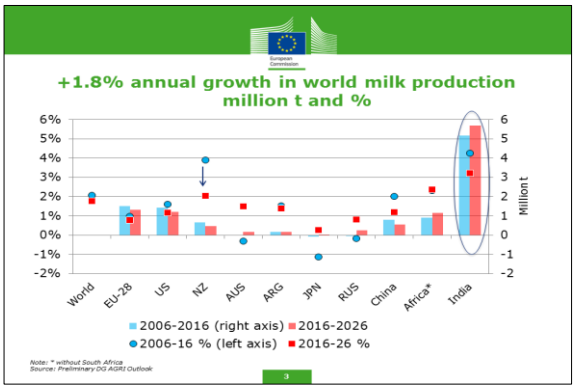
We need to understand that:

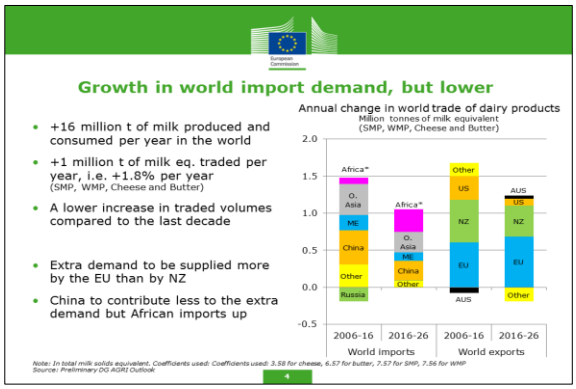
- ✓ The wine sector is and will be a profitable and healthy economic sector
- ✓ In which consumption will remain stable but with changes as regards to the countries where it is mostly consumed, with the EU losing points while North America and Asia will grow
- ✓ There are global trends regarding wine consumption in favour of sparkling and fresh easy wines, with a growing polarization between a small segment of premium classical and high quality wines and a large segment of popular ones, where trading in bulk may rise.
- ✓ Europe has a predominant place in the world of wine, despite being challenged from many countries with efficient companies. We need to understand that consumption is changing.
- ✓ But wine is very much connected in worldwide consumption with the culture and the gastronomy of Europe; it is more than a liquid that has been produced in a place (*way of life*).
- ✓ Trends in world consumption and trade will affect production in terms of both surface of vineyards (probably needed in less quantities) and yields (probably increasing, depending on the availability of water and the effect of climate change)
- ✓ Prices and more important, profitability of growers and producers will very much depend on (i) the equilibrium between supply and demand (normally reached in the medium term but with imbalances in the short run) and (ii) the adaptation of the structure along the value chain. [11]

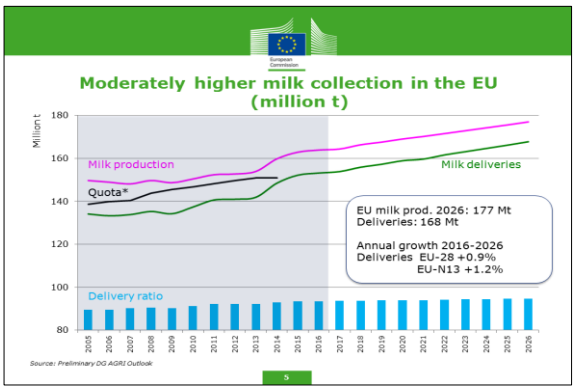
Session: Milk and dairy

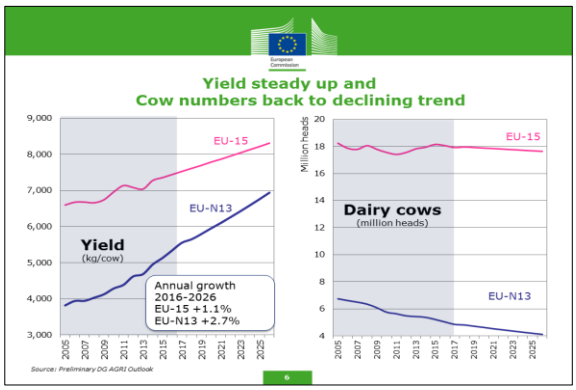
Sophie Helaine (DG AGRI)



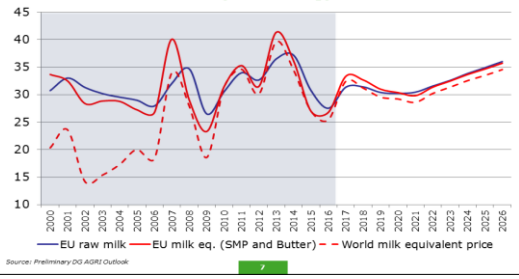








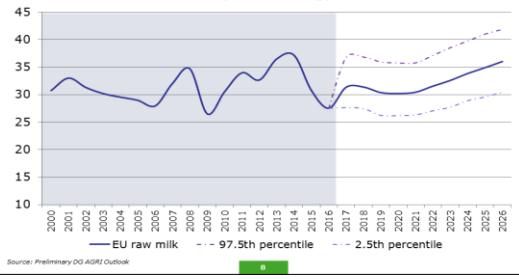
Milk price under pressure in the short-run
(EUR/100 kg)



Source: Preliminary DG AGRI Outlook

7

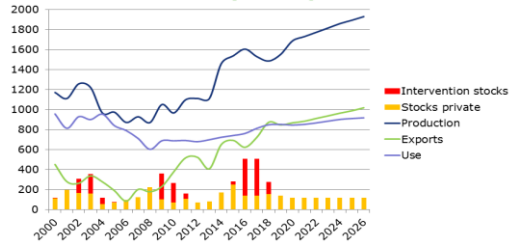
There will be volatility around this trend
(EUR/100 kg)



Source: Preliminary DG AGRI Outlook

8

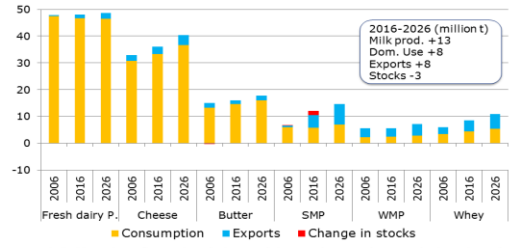
EU SMP balance
(1000 t)



Source: Preliminary DG AGRI Outlook

9

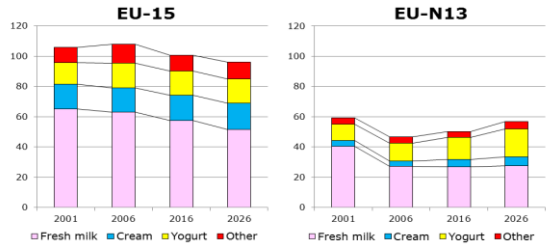
Additional EU milk mainly for exports in the next decade
(million t of milk equivalent)



Note: In total milk solids equivalent. Coefficients used: 3.58 for cheese, 6.57 for butter, 7.57 for SMP, 7.56 for WMP, 7.48 for whey powder, 0.85 for drinking milk, 3.21 for cream and 0.98 for yogurts
Source: Preliminary DG AGRI Outlook

10

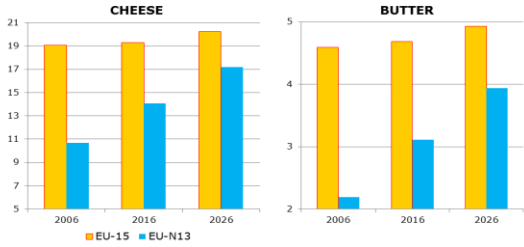
Lower fresh dairy products consumption in the EU-15
(in kg of milk eq. *per capita*)



Note: In total milk solids equivalent. Coefficients used: 0.85 for drinking milk, 3.21 for cream and 0.98 for yogurts
Source: Preliminary DG AGRI Outlook

11

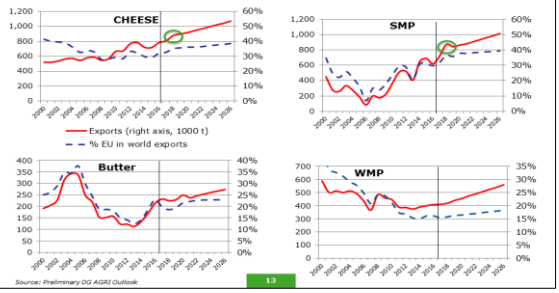
More *per capita* consumption of cheese and butter
(kg *per capita*)



Source: Preliminary DG AGRI Outlook

12

EU exports (1000 t)



Source: Preliminary DG AGRI Outlook

13

Key uncertainties

- Which development of EU domestic use (fresh milk, yogurt, cream, cheese)?
- Do we have a protein problem?
- Any new dairy products to look at?
- Have we replaced a dependence on Russia by a dependence on China?

14

Roel Jongeneel (AGMEMOD consortium)

Dairy Markets Development at MS-level

Application of AGMEMOD

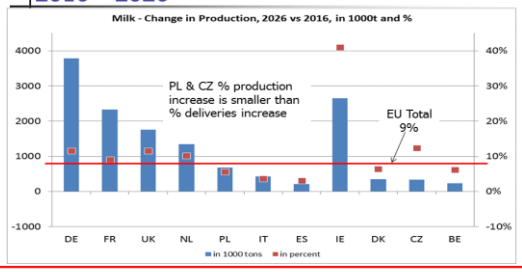
Roel Jongeneel, Myrna van Leeuwen, Willy Baltussen (Wageningen Economic Research), Martin Banse, Petra Salamon (Thünen Institute), Trevor Donnellan, Kevin Hanrahan (Teagasc)

Brussels, 26 October 2016

Highlights: Dairy Markets until 2026

- Production:
  - About 75 percent of EU's milk supply increase (+14 Mil.ton) is realised by 5 MS (DE, IE, UK, FR, NL)
  - Resumption in the decline in dairy herd across EU is expected (IE an exception)
  - Limited relocation of production to Dairy Belt
- Consumption:
  - Differing country characteristics explain differences in evolution of dairy product consumption per capita by MS
    - Drinking milk, cheese and other dairy (fresh) products
- Trade:
  - Intra EU trade is more important than extra EU trade at MS level

MS Increase in Raw Milk Production, 2016 - 2026



- About 75 percent of the EU's milk supply increase (+14 Mil.ton) is realized by 5 MS (DE, IE, UK, FR, NL)

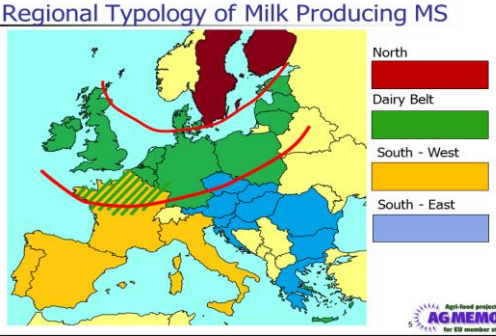
Production of Raw Milk, 2016 - 2026

	DE	FR	UK	NL	PL	IT	ES	IE	DK	CZ	BE	AT
estimated supply change (%)	12	9	12	10	6	4	3	41	6	12	6	16
Productivity (%)												
Dairy herd (%)												
Competitiveness												
Environmental constraints												

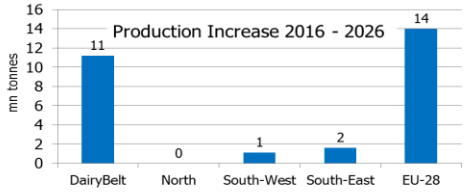
- Strong yield growth in some MS (IE, ES, CZ)
- Resumption in herd decline across the EU is expected (IE an exception)
- Which MS can expand in low price situation (2015/16 milk crisis) ?
  - IE, NL and DK show strong performance (growth in 2015 and 2016)
- NL future production to be restricted by environmental constraints
- Environmental constraints potential future concern for IE, DE (reg), FR (reg), DK

*) Legend: traffic light colour code used to indicate "strong" (green), "average" (orange), or "weak" (red) performance or "positive"(green), "average"(orange), or "negative" (red) impact on dairy production

Regional Typology of Milk Producing MS



Regional Typology of Milk Producing MS



- Dairy Belt produces 80% of milk production increase in period to 2026
- Dairy Belt produces 68% of EU milk production by 2026 (67% in 2015)
- Milk Production in Dairy Belt growing only slightly faster than elsewhere in EU

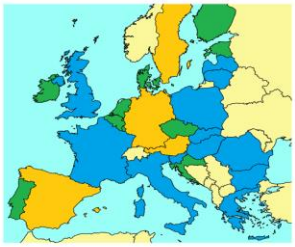
Characteristics of dairy product consumption, 2016-2026

	Product	DE	FR	UK	NL	IT	PL	ES	DK	CZ
total growth 2016-26	income/cap	15.4	15.3	15.1	12.2	17.9	23.1	15.9	12.0	20.4
	population	-0.7	4	6.3	3.6	-0.2	-1.7	-0.2	4.1	2.7
per capita trend	Drinking milk	0/+	-	0/-	-	0/+	+	-	0/+	0/+
	Butter	0/+	0/+	0/+	0/-	0/-	0/+	0/+	0/+	++
	Cheese	0/+	0/+	0/+	+	+	++	0/+	+	++

- Income & pop growth have impact on consumption in selected MS
- Diverging MS trends in per capita (apparent) consumption of dairy products
- Drinking Milk consumption decrease at EU level is not uniform at the MS level
- Cheese (& other fresh dairy) products per capita show growth in most MS

*) Legend: traffic light colour code used to indicate "strong" (green), "average" (orange), or "weak" (red) performance or "positive"(green), "average"(orange), or "negative" (red) impact on dairy production

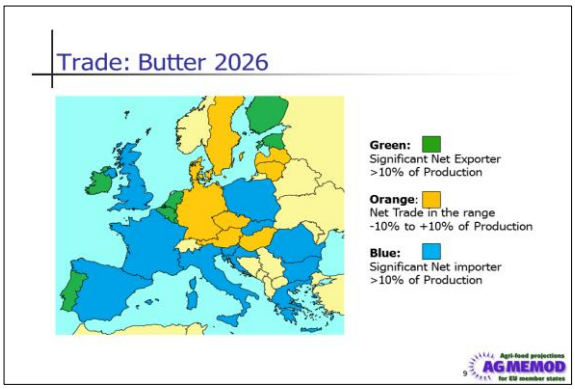
Trade: Butter 2016

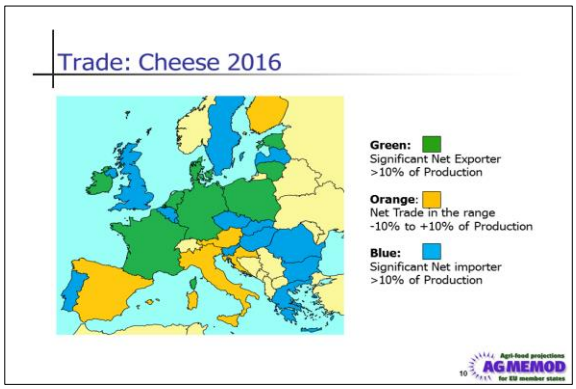


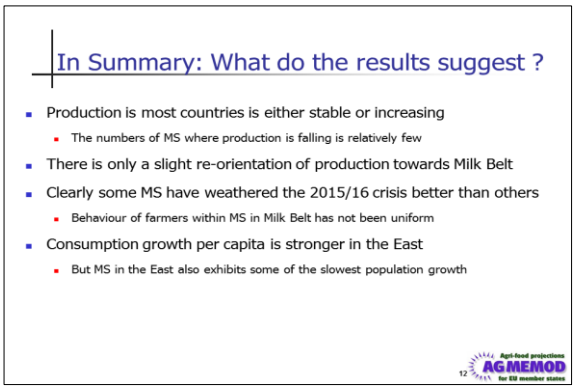
Green: Significant Net Exporter >10% of Production

Orange: Net Trade in the range -10% to +10% of Production

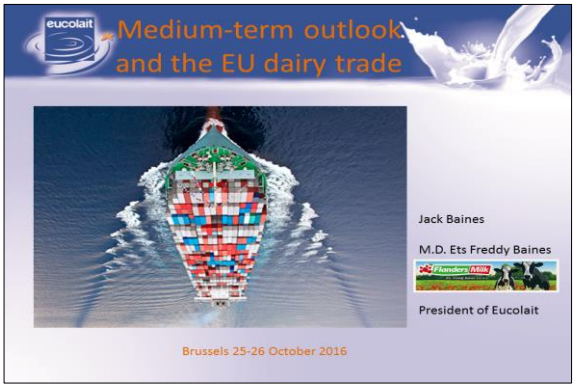
Blue: Significant Net importer >10% of Production

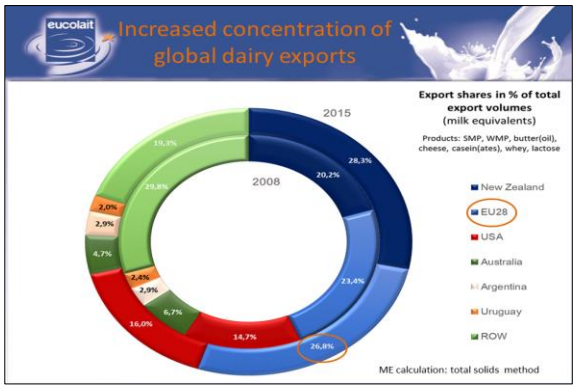




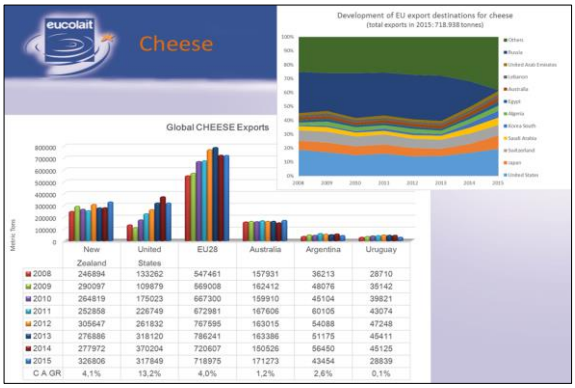


Jack Baines (Eucolait)



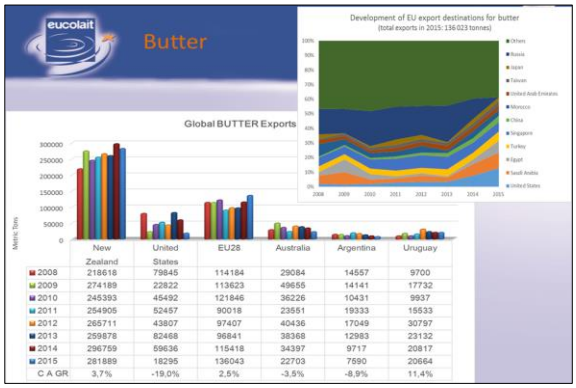


Cheese



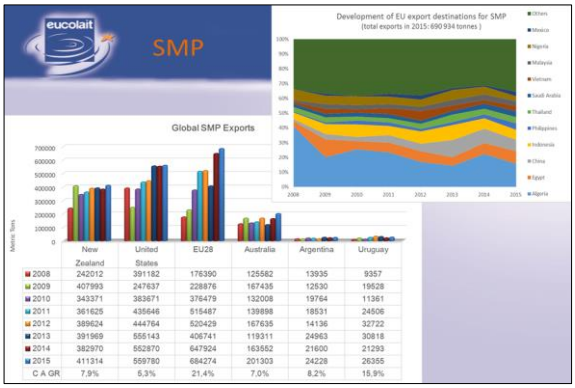
	New Zealand	United States	EU28	Australia	Argentina	Uruguay
2008	246894	133262	547461	157931	36213	28710
2009	290097	109879	569008	162412	48076	35142
2010	264819	175023	667300	159910	45104	39821
2011	262858	226749	672981	167606	60105	43074
2012	305647	261832	767595	163015	54088	47248
2013	276886	318120	786241	163386	51175	45411
2014	277972	370204	720607	150526	56450	45125
2015	326806	317849	718975	171273	43454	28839
C A GR	4,1%	13,2%	4,0%	1,2%	2,6%	0,1%

Butter



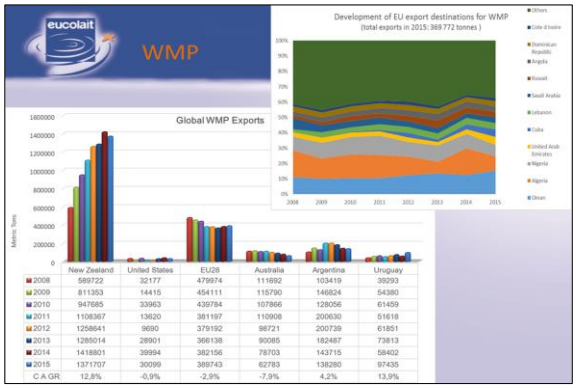
	New Zealand	United States	EU28	Australia	Argentina	Uruguay
2008	218618	79845	114184	29084	14557	9700
2009	274189	22822	113623	49655	14141	17732
2010	245393	45492	121846	36226	10431	9937
2011	254905	52457	90018	23551	19333	15533
2012	265711	43807	97407	40436	17049	30797
2013	259878	82468	96841	38368	12983	23132
2014	296759	59636	115418	34397	9717	20817
2015	281889	18295	136043	22703	7690	20664
C A GR	3,7%	-19,0%	2,5%	-3,5%	-8,9%	11,4%

SMP



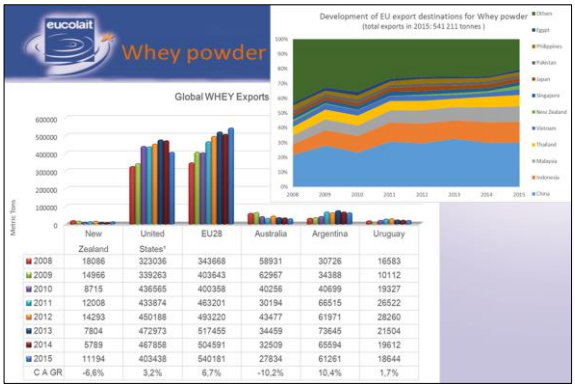
	New Zealand	United States	EU28	Australia	Argentina	Uruguay
2008	242012	391182	176390	125582	13935	9357
2009	407993	247637	228876	167435	12530	19528
2010	343371	383671	376479	132008	19764	11361
2011	361625	435646	515487	139898	18531	24506
2012	389624	444764	520429	167635	14136	32722
2013	391969	555143	406741	119311	24963	30818
2014	382970	552870	647924	163562	21600	21293
2015	411314	559780	684274	201303	24228	26355
C A GR	7,9%	5,3%	21,4%	7,0%	8,2%	16,9%

WMP



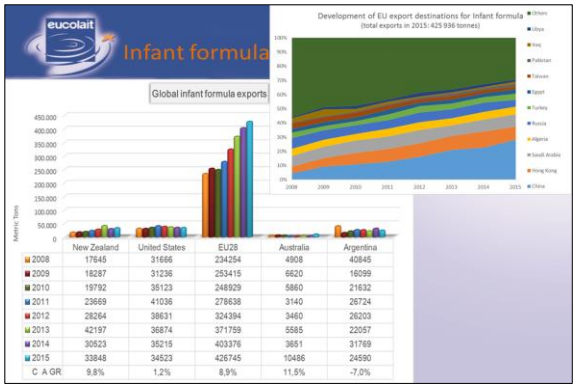
	New Zealand	United States	EU28	Australia	Argentina	Uruguay
2008	589722	32177	479974	111692	103419	39293
2009	811353	14415	454111	115790	146824	54380
2010	947685	33963	439784	107866	128056	61459
2011	1108367	13620	381197	110908	200630	51618
2012	1258641	9690	379192	98721	200739	61851
2013	1285014	28901	366138	90085	182487	73813
2014	1418801	39994	382156	78703	143715	58402
2015	1371707	30099	389743	62783	138280	97435
C A GR	12,8%	-0,9%	-2,9%	-7,9%	4,2%	13,9%

Whey powder



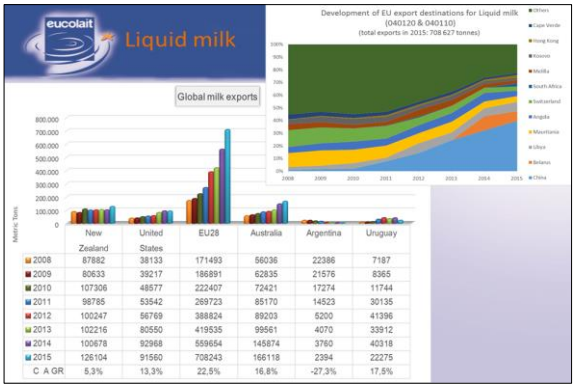
	New Zealand	United States*	EU28	Australia	Argentina	Uruguay
2008	18086	323036	343668	58931	30726	16583
2009	14966	339263	403643	62967	34388	10112
2010	8715	436565	400358	40256	40699	19327
2011	12008	433874	463201	30194	66515	26522
2012	14293	450188	493220	43477	61971	28260
2013	7804	472973	517455	34459	73645	21504
2014	5789	467858	504591	32509	65594	19612
2015	11194	403438	540181	27834	61261	18644
C A GR	-6,6%	3,2%	6,7%	-10,2%	10,4%	1,7%

Infant formula



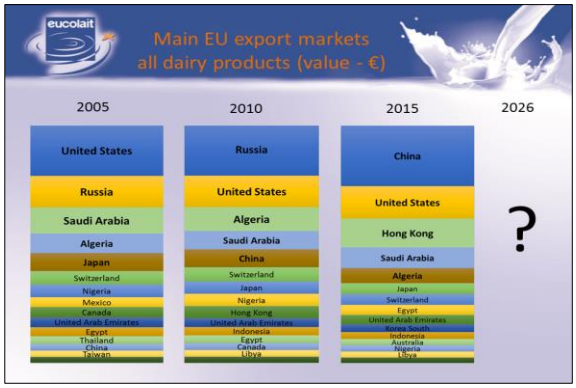
	New Zealand	United States	EU28	Australia	Argentina
2008	17645	31666	234254	4908	40845
2009	18287	31236	253415	6620	16099
2010	19792	35123	248929	5860	21632
2011	23669	41036	278638	3140	26724
2012	28264	38631	324394	3460	26203
2013	42197	36874	371759	5585	22057
2014	30523	35215	403376	3651	31769
2015	33848	34523	426745	10486	24590
C A GR	9,8%	1,2%	8,9%	11,5%	-7,0%

Liquid milk



	New Zealand	United States	EU28	Australia	Argentina	Uruguay
2008	87882	38133	171493	56036	22386	7187
2009	80633	39217	186891	62835	21576	8365
2010	107306	48577	222407	72421	17274	11744
2011	98785	53542	269723	85170	14523	30135
2012	100247	56769	388824	89203	5200	41396
2013	102216	80550	419535	99561	4070	33912
2014	100678	92968	559654	145874	3760	40318
2015	126104	91560	708243	166118	2394	22275
C A GR	5,3%	13,3%	22,5%	16,8%	-27,3%	17,5%

Main EU export markets all dairy products (value - €)



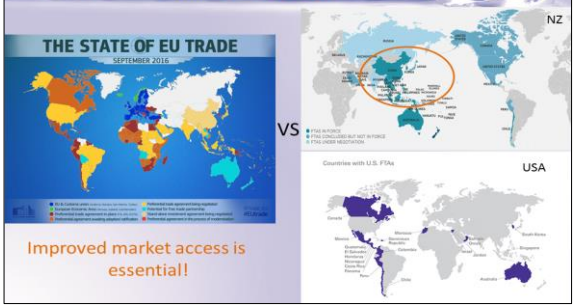
Growth vectors of global dairy demand

- **Increasing world population** (especially in Africa and Asia) with an estimated 9 billion people in 2050 **leading to increasing demand for food** (+50% by 2050)
- **Higher income** (growing middle class), growing urbanisation, changing consumption habits and development of modern retail and food service **leading to higher dairy consumption**
- **Global trade will likely continue to increase faster than consumption** as major growth regions (South-East Asia, MENA and Sub Saharan Africa) will become increasingly import dependent
- Increasing global demand for dairy of app. 2,3% per year

Promising markets

- **China**
- **Japan**
- **South Korea**
- **South East Asia**
- **MENA**
- **Sub Saharan Africa**
- **The Americas**
- **Russia**

Global demand for dairy will increase **BUT**:

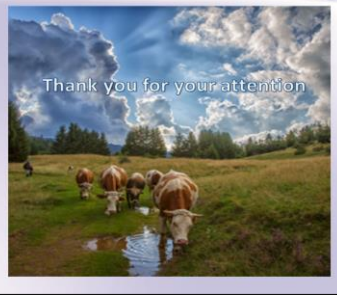


Improved market access is essential!

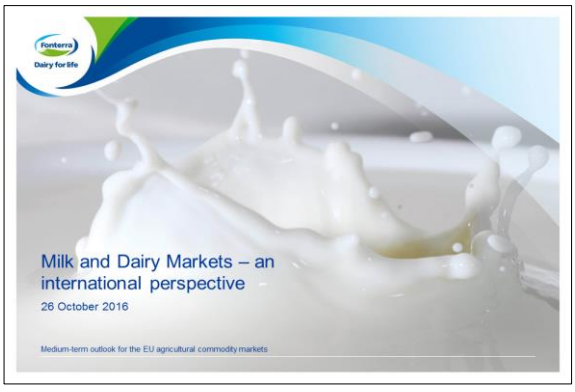
Conclusion is one of cautious optimism

- Global consumption of dairy products will continue to increase
- Global trade should increase faster than consumption
- EU dairy market balance is reliant on increased exports
- The share of EU exports in global trade will be determined by FTA negotiations

On their way to 2026



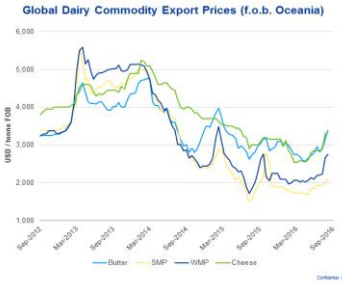
Francis Reid (Fonterra)



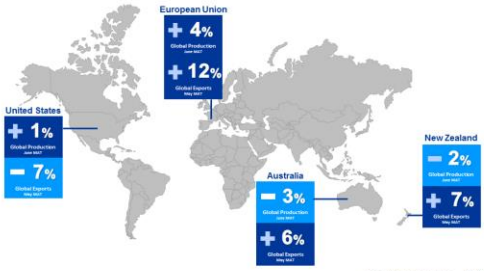
Initial responses to preliminary Dairy Prospects 2016-2026

- **EU Milk Production** – why would annual growth be lower 2016-2026 (at 0.8%) than 2006-2016 (1.0%) when quotas were a constraint?
- **EU vs world pricing** – why do cheese and butter price gaps remain when the EU is exporting an increasing share of production (without export subsidies)?
- **Butter production / consumption growth** – is there upside for production and consumption given the trend towards butter and away from alternative fat sources?
- **SMP growth** – 5.0% annual export growth 2016-2026 is a lot, but lower than the growth rate 2006-2016. What happens if this growth doesn't eventuate?
- **WMP production / export growth** – is the 2.4% annual production growth 2016-2026 too high (compared to 1.9% for SMP) given the strengthening demand for butter?
- **Whey market projections** – is annual whey growth strong enough at 1.4% 2016-2026 given the strength of demand for nutritional products?

Global dairy markets have begun to recover from a prolonged period of low prices

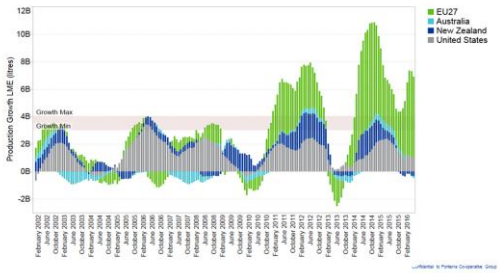


Production has slowed across all key export regions

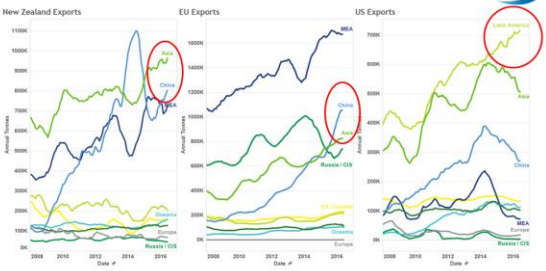


Milk Production Growth from Major Exporting Countries

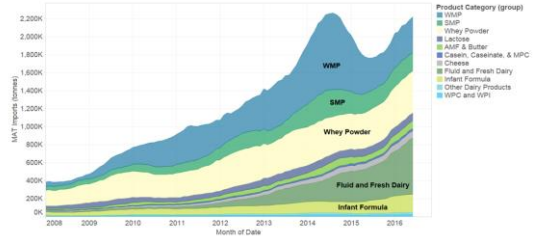
EU, US, NZ and Australia account for around 70% of global exports. Typically the globally traded market has comfortably absorbed the growth of between 3 to 4 billion litres from these countries. More recently, growth has been above this benchmark and was around 7 billion litres in the 12-months to May 2016.



EU, US and NZ driving growth across multiple export destinations



China Imports continue to grow, led by liquid milk (UHT) and Infant Formula



Reference: IHS Maritime & Trade (GTIS) / Fonterra Analysis

Fonterra business platforms

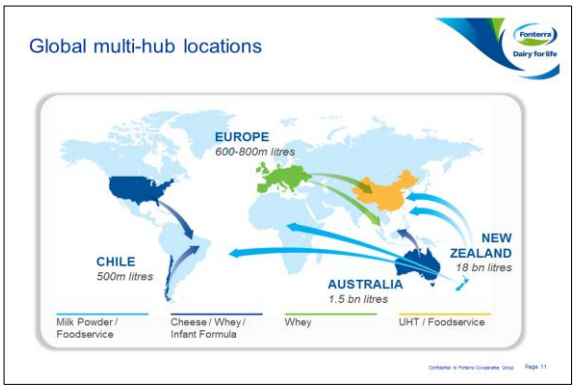
Milk Supply

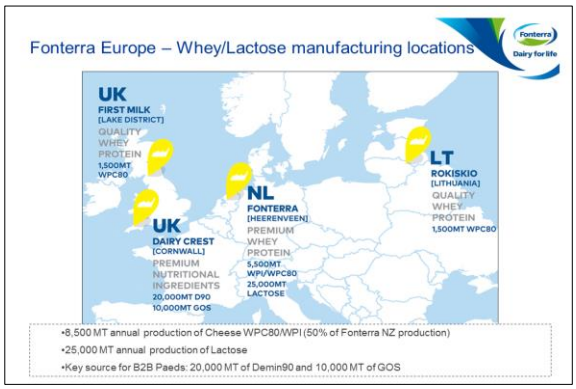
Foodservices

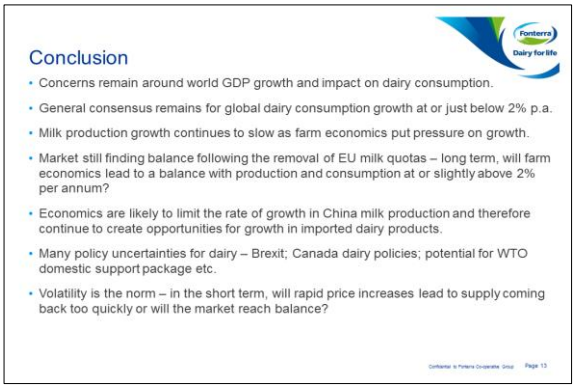
Consumer brands

Ingredients

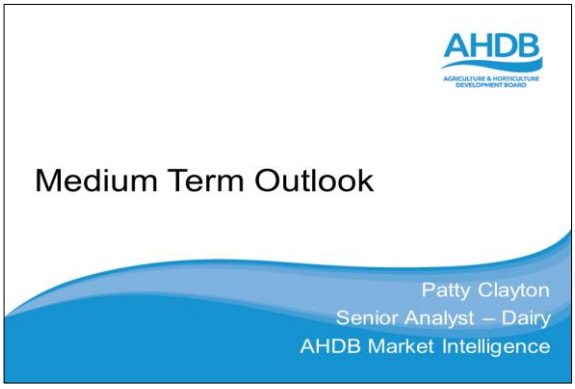
Source: Fonterra

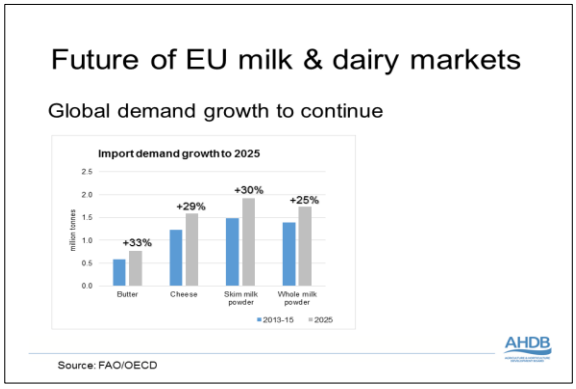


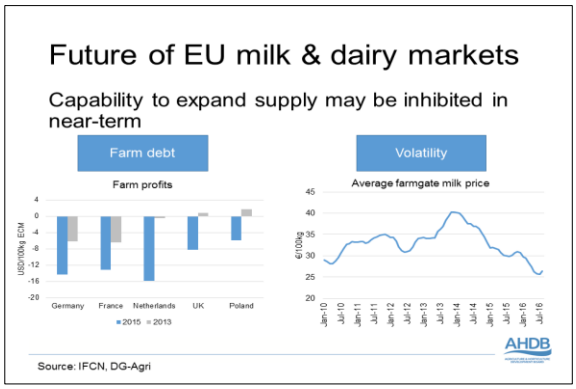




Patty Clayton (AHDB)

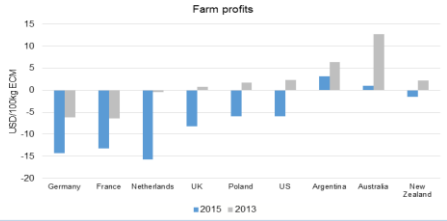






Future of EU milk & dairy markets

How quickly can farm sector recover relative to competitors?



Source: IFCN

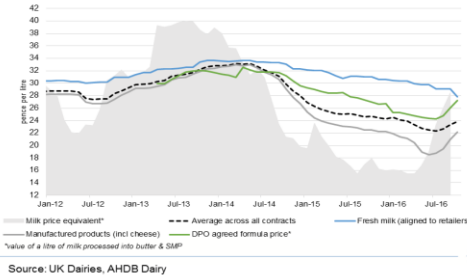
Producer Organisations – the UK experience

- Dairy Producer Organisations
  - One Official DPO
    - Established May 2015 with formal legal powers to negotiate on behalf of member
    - Previously membership organisation with paid representatives working on behalf of farmers supplying a processors
  - One potential DPO
    - In process, attempting to formalise PO from informal group of suppliers

Aligned contracts – the UK experience

- Four retailers operate aligned milk pools
- Pay dedicated pools of farmers a price based on a formula
  - cost of production
  - cost and market indicators
  - Basket of other prices
- Prices adjust on a quarterly or six-monthly basis
- Manufacturers act as 'toll processors'

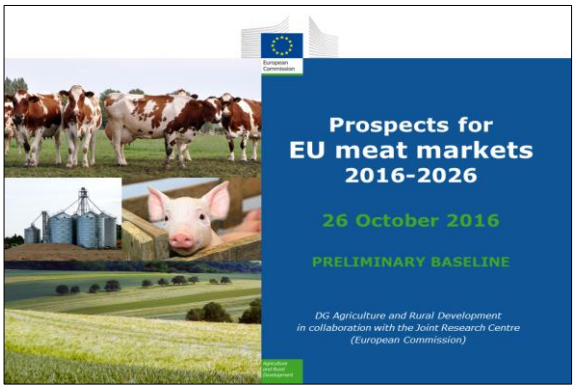
GB farmgate prices by contract type



Source: UK Dairies, AHDB Dairy

Session: Meat

Benjamin Van Doorslaer (DG AGRI)



Main messages

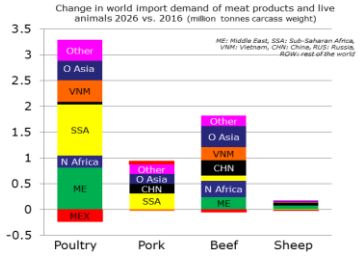
- **Stabilising EU demand after short time increase, but growing world import demand**
- **Lower world prices will continue to put pressure on EU exports and domestic prices but world prices expected to go up by 2026**
- **Towards a record year for EU meat production in 2016**
- **Minor increase in EU meat production, around 500 000 t by 2026 (+ 1.3%)**

2

Steady growth in world consumption

- +1.3% per year in world consumption
- +2% per year in world imports
- Growth mainly in existing EU trade partners

Change in world import demand of meat products and live animals 2026 vs. 2016 (million tonnes carcass weight)

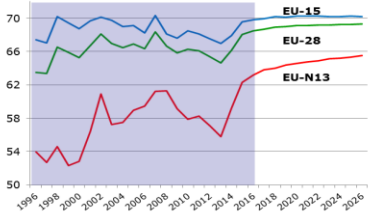


Source: Preliminary DG AGRI Outlook

3

Stabilising *per capita* meat consumption in EU-15, increasing in EU-N13

Kg/cap (retail weight)



- Consumption per capita: +0.1% /year
- Total consumption: +0.2 % / year

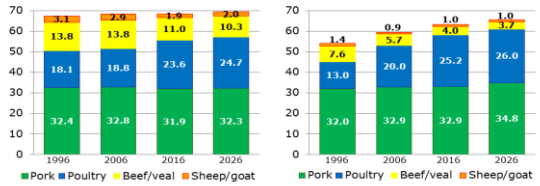
BUT

- Different patterns by meat product

Source: Preliminary DG AGRI Outlook

4

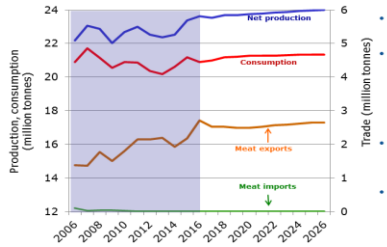
EU *per capita* consumption (kg retail weight)



Source: Preliminary DG AGRI Outlook

5

Limited increase in EU pigmeat production related to export potential and domestic consumption

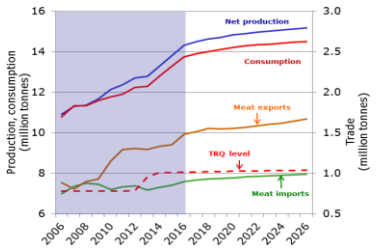


- EU production increasing by 2%
- EU consumption driven by slowly growing population and slight increase in per capita consumption,
- Exports limited due to competition on international markets
- Russian ban (2018): no visible effect

Source: Preliminary DG AGRI Outlook

6

EU poultry meat continues its growing path

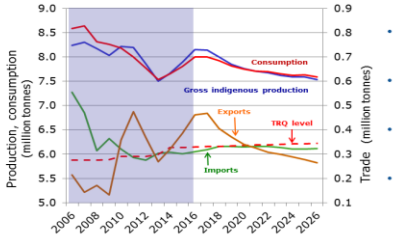


- EU production increasing by 6% (2026 vs. 2016), slower rate than previous decade
- EU consumption still increasing
- Exports limited due to competition, but improving by 2026

Source: Preliminary DG AGRI Outlook

7

EU beef production follows dairy herd decrease

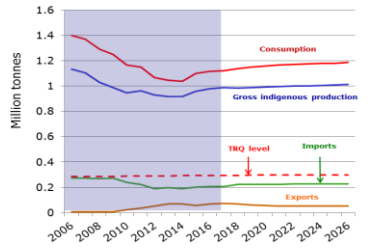


- EU cow herd: decrease of 1 million heads (-3%)
- Changes in production are following dairy herd decrease
- Exports: slowdown in import demand from Turkey
- EU becomes net-importer again

Source: Preliminary DG AGRI Outlook

8

Slight increase of sheep and goat meat production and consumption in EU

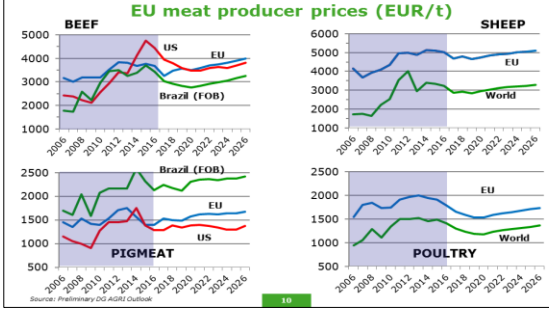


- EU production increasing by 3% (2026 vs. 2016)
- EU consumer finds appetite for sheep meat
- Exports limited due to low competitiveness on international markets
- TRQ not filled

Source: Preliminary DG AGRI Outlook

9

EU meat producer prices (EUR/t)



Source: Preliminary DG AGRI Outlook

10

Main uncertainties

- The development of the *per capita* consumption in the EU-15 and EU-N13 after three years of increase (2014-16) ?
- Export potential of Brazil for beef to the EU by 2026 ?
- Constraints/limits (if any) to the growth of pork and poultry production in the EU (EU demand, exports, environmental legislation, …) ?
- Chinese import demand

11

Ignacio Pérez Domínguez (JRC)

EU Impact Analysis on GHG-Emission Targets in Agriculture: How could EU Meat Markets be affected?

Ignacio Pérez Domínguez & Thomas Fellmann

Outlook Workshop 2016, Brussels, 25-26 October

Based on the EcAMPA 2 Report by: I. Pérez Domínguez, T. Fellmann, F. Weiss, P. Witzke, J. Barreiro-Hurlé, M. Himics, T. Jansson, G. Salputra, A. Leip

Background of the EcAMPA Study

- Provide an overview of the evolution of **agricultural GHG emissions** in Europe to 2030
- Identify **technological mitigation options** that could be applied and at which costs by EU Member States
- Assess possible **market effects and costs** (and related policy options such as subsidies)
- Potential economic impacts of the inclusion of the agricultural sector into the **EU Climate Policy Framework** for 2030
- Focus of this presentation: **EU meat sector**

Scenario Analysis

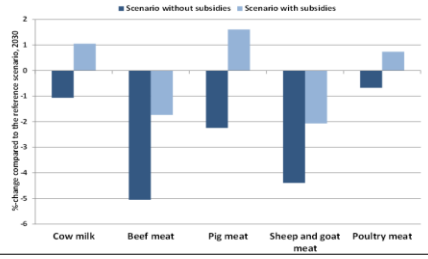
Main scenario assumptions:

- Compulsory 15% mitigation target for EU agriculture, cost-effective allocation for MS.
- Scenario without subsidies and scenario with subsidies for adopting certain mitigation technologies.

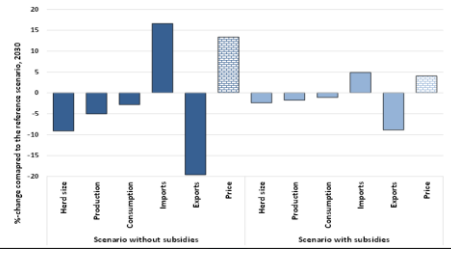
Technological mitigation options considered:

- Livestock: Anaerobic digestion at farm scale, Low nitrogen feed, Linseed as feed additive, Breeding programs
- Crops: Precision farming, Variable Rate Technology, Better timing of fertilization, Nitrification inhibitors, Rice measures, Fallowing histosols, Increasing legume share on temporary grassland.

EU Cow Milk and Meat Production: Ruminant Meats more affected

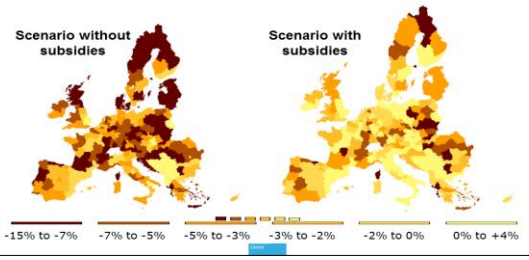


Subsidies mitigate effects for EU Beef Market Balances and Prices

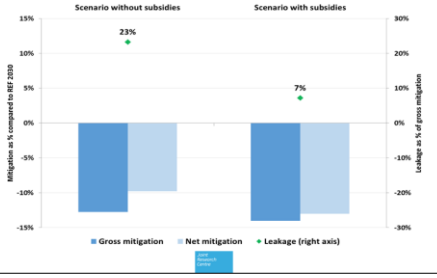


EU Beef Production Impacts

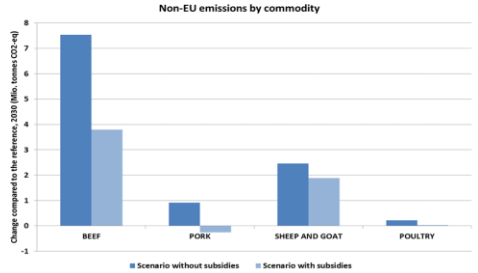
(% change to reference scenario, 2030)



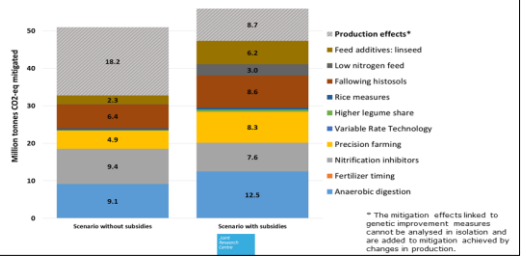
Emission Leakage not negligible



Emission Leakage is highest for Beef



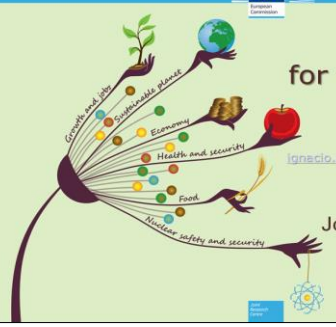
Overall Mitigation Achievement and Contribution by Technology



* The mitigation effects linked to genetic improvement measures cannot be analysed in isolation and are added to mitigation achieved by changes in production.

Conclusions

- GHG emission reduction obligations for the EU agriculture sector without financial support would provoke important (negative) production effects in the EU livestock sector.
- Decreases in domestic beef production partially offset by production increases in other parts of the world, leading to emission leakage.
- Adverse effects on EU agricultural production and emission leakage are significantly reduced if subsidies for mitigation are paid … however, considerable budgetary costs!
- Limited set of technologies, further research regarding adoption by farmers is needed.



Thank you for your attention

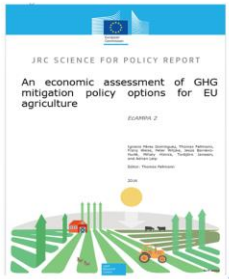
ignacio.perez-dominguez@ec.europa.eu
thomas.fellmann@ec.europa.eu

Joint Research Centre

Serving society
Stimulating innovation
Supporting legislation

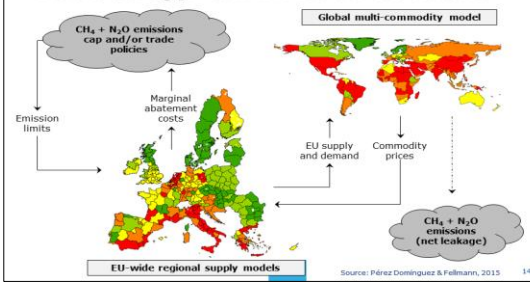
The EcAMPA 2 report

Pérez Domínguez, I., T. Fellmann, F. Weiss, P. Witzke, J. Barreiro-Hurlé, M. Himics, T. Jansson, G. Salputra, A. Leip (2016): An economic assessment of GHG mitigation policy options for EU agriculture (EcAMPA 2). JRC Science for Policy Report, EUR27973 EN, doi:10.2791/843461



Background studies for EcAMPA 2

Methodology: CAPRI Model structure

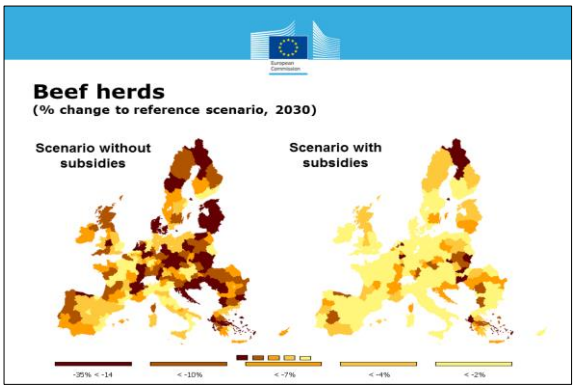


Scenario assumptions: baseline (I)

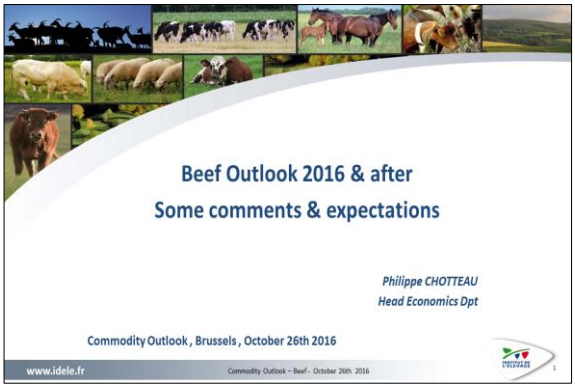
PILLAR I		
Instrument	**Base year 2008**	**Baseline 2030**
Direct payments	As defined in 2003 reform and 2008 Health Check (HC); covering SFP or (SAPS)	2013 reform (partially) implemented
Decoupling	Historical/Regional/Hybrid schemes	Basic Payment Scheme
Coupled direct payment options	As defined in 2003 reform (including Article 68/69 and CNDP)	VCS according to the options notified by MS up to 01/08/2014*
Redistributive payment	NA	Not implemented
Young Farmer Scheme	Not implemented	Not implemented
Green Payment	NA	Green Payment component granted without restriction (only limitation: no conversion of permanent grassland)*
Capping	Modulation implemented	Implemented according to 2013 reform. Capped budget redistributed over RD measures
Convergence	NA	included

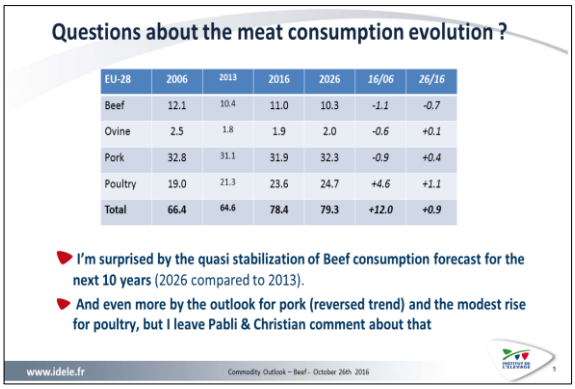
Scenario assumptions: baseline (II)

PILLAR II		
Instrument	**Base year 2008**	**Baseline**
Agri-environmental schemes	Less Favoured Areas (LFA) and Natura 2000 payments	Areas with Natural Constraints (ANC) and Natura 2000
Business Development Grants / investment aid	Not considered	Not considered
Common Market Organization		
Instrument	**Base year 2008**	**Baseline**
Sugar quotas	Yes	Abolition of the quota system in 2017
Dairy quotas	Yes	Quota system expires in 2015
Tariffs, Tariff Rate Quotas	Yes	Maintained at current level
Export Subsidies	Yes	Not applied in 2030

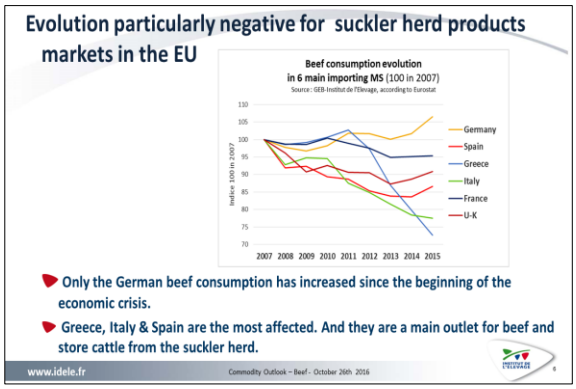


Philipper Chotteau (Institut de l'Elevage)





EU-28	2006	2013	2016	2026	16/06	26/16
Beef	12.1	10.4	11.0	10.3	-1.1	-0.7
Ovine	2.5	1.8	1.9	2.0	-0.6	+0.1
Pork	32.8	31.1	31.9	32.3	-0.9	+0.4
Poultry	19.0	21.3	23.6	24.7	+4.6	+1.1
Total	66.4	64.6	78.4	79.3	+12.0	+0.9



In France, « Où va le bœuf » 2015 survey

- 42% of beef sold in France is industrially processed (mainly for burgers), and this share is still growing
- If the bulk of processed beef comes from dairy females, 32% of Beef breed female carcasses are processed.
- In the Supermarkets (54% of beef demand), 2 segments are growing:
  - high value (15-20% of SM market share)
  - 1st price and sales (30-40% of SM market share)
- ..but the « heart » of the meat SM shelves (mainly Charolaise cow) is reducing.

A high diversity of processed beef, but segmented on technical aspects, not on sourcing (breeds…)

- Fat % (5/15/20)
- Low/high pressure, cutting
- Mixed with vegetable proteins
- Brand (industrial or SM)
- … and only after breed

In France, « Où va le bœuf » 2015 survey

- 42% of beef sold in France is industrially processed (mainly for burgers), and this share is still growing
- If the bulk of processed beef comes from dairy females, 32% of Beef breed female carcasses are processed.
- In the Supermarkets (54% of beef demand), 2 segments are growing:
  - Top end, high value (15-20% of SM market share)
  - Cheaper price and sales (30-40% of SM market share)
- ..but the « heart » of the meat SM shelves (mainly Charolaise cow) is reducing.

Other markets for products from the suckler herd: export

- Live export: why such a decline (from 235 in 2015 to 80 ktcwe in 2026) ?

The demand around Mediterranean seems consistant, for stores or for finished cattle ready to slaughter.

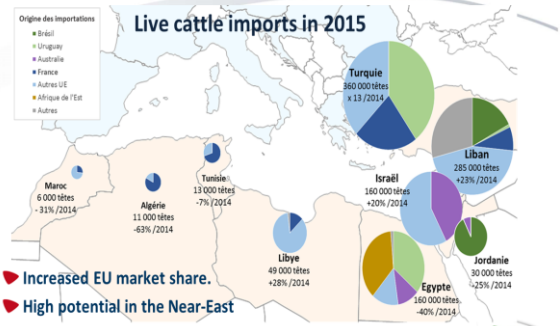
Drivers:

- Best value for offals in these countries
- Ritual slaughtering, that may be different from one country to another (specifically different halal ritual and certifications)
- Pb of cold chain: more easy to stock live cattle than meat
- Political power of slaughter and live trader lobbies
- Appreciated European cattle : low fat young bulls and higher growth potential for stores

Threats for this market:

- Animal welfare growing concerns in the EU
- Sanitary status (Blue tongue…)
- Political embargos
- International competition… from over the Atlantic (Uruguay, Brazil…)

Live cattle imports in 2015



- Increased EU market share.
- High potential in the Near-East

Questions also for the beef exports & imports ?

- Why such a decrease of beef exports between 2017 & 2020 ?
  Because of World market price drop I imagine
- Stable imports: because without any FTA entering in force in the assumptions.
- But what if new Tariffs quotas targeting top end market with refrigerated rump & loin in restaurants (where « local preference » is far less obvious) ?

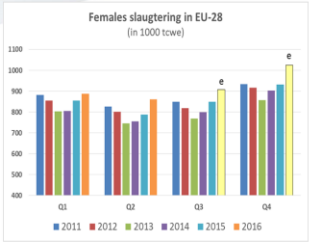
Ex: CETA: EU quota of 45 kt of beef à 0 duty. For an increase of EU real GDP of #0,02 to 0,03% over the long-term (impact assessment EC)…

Specialized beef farmers are facing more & more difficulties, notably in cow-calf operations

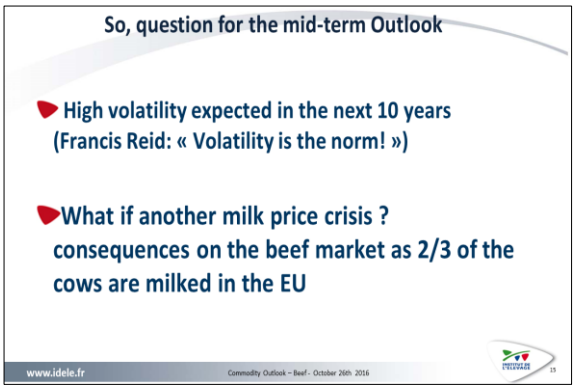
- Incomes have been at a low level since 3 years
- Highly dependant upon supports, 1st or 2nd pillar (LFA)
- Nearly 40% of French beef farmers suffered negative cash flows in 2015
- Capital is heavier & heavier: according to a new cash flow observatory, specialized beef farmers need to invest 8 € in capital to get 1 €/year of gross operating surplus
- The situation appears to be similar in the other main beef farms throughout the EU
- Coupled payment (in FR, SP, PO, BE,IT, SC…) but not in the UK, EI, GE

=> Hard to imagine a slight capitalization in the suckler herd at the EU level, with poor prices (far from 2012/13 level) forecast untill 2022, even with low competition from crop farming

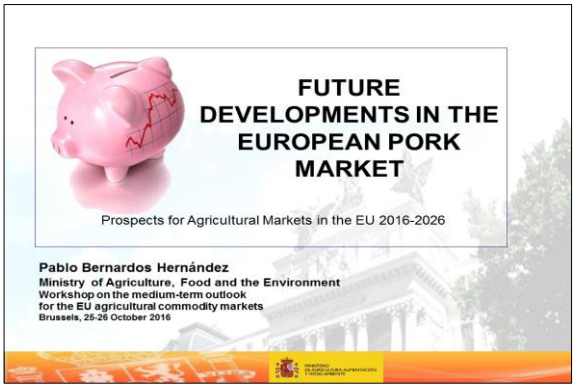
Huge impact of the Dairy crisis on the beef market

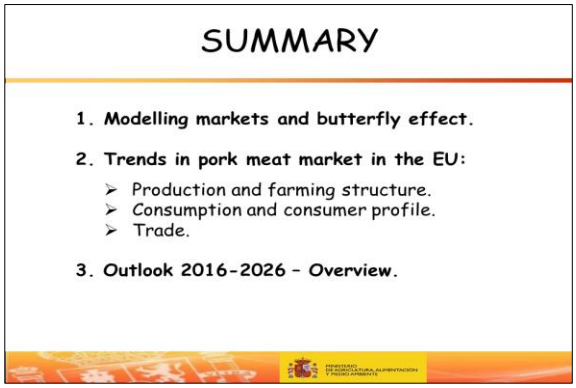


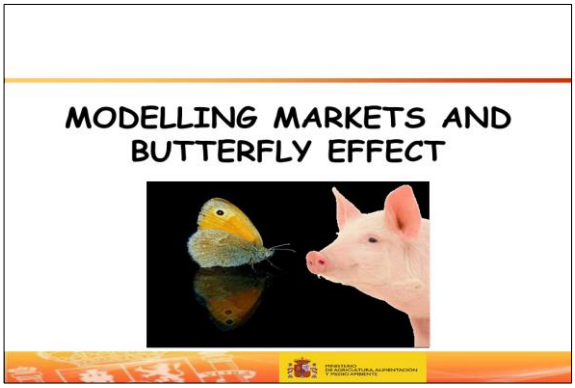
- H1 2016/2014: +12%
- 2016 e/2014: +13 % or +420 ktcwe
- And allways an increase awaited in 2017

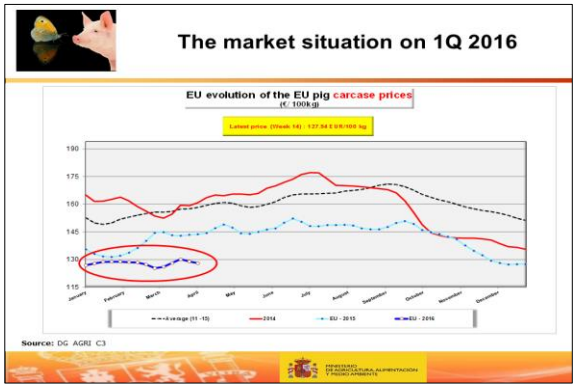


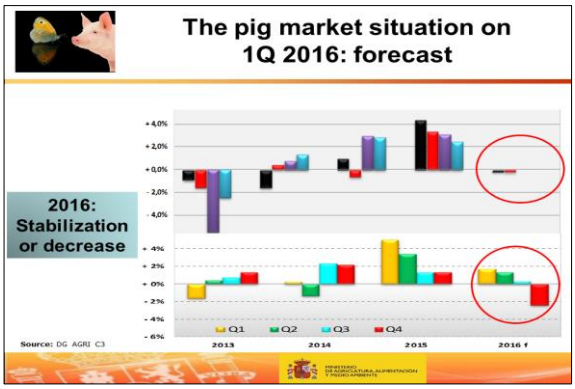
Pablo Bernardos Hernández (MAGRAMA)



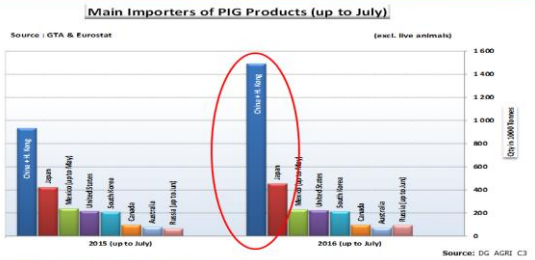




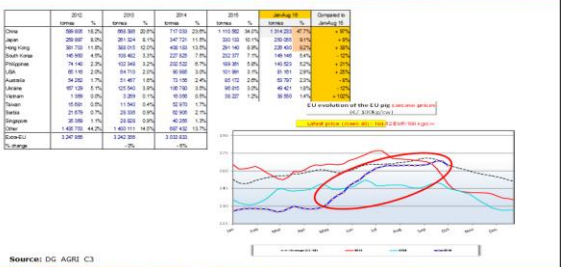




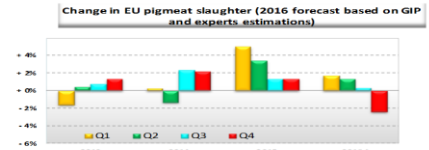
The pig market situation on 2016: the Chinese factor



The pig market situation on 2016: the Chinese factor



The pig market situation on 2016: forecast versus reality

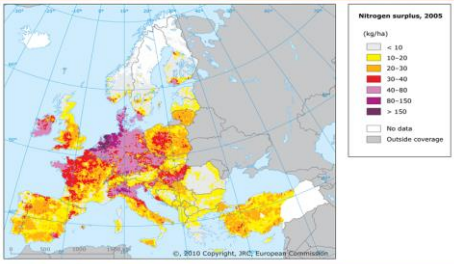


	2013	2014	2015	2016 f	Real slaughter 2016
Q1	- 1.6%	+ 0.3%	+ 5.0%	+ 1.7%	+ 0.1%
Q2	+ 0.4%	- 1.3%	+ 3.4%	+ 1.4%	+ 4.1%
Q3	+ 0.8%	+ 2.3%	+ 1.3%	+ 0.3%	
Q4	+ 1.3%	+ 2.2%	+ 1.3%	- 2.4%	
EU_28	+ 0.2%	+ 0.9%	+ 2.7%	+ 0.2%	

Source: DG AGRI C3

TRENDS IN PORK MEAT MARKET IN THE EU

Production: environmental constraints



Production: environmental constraints

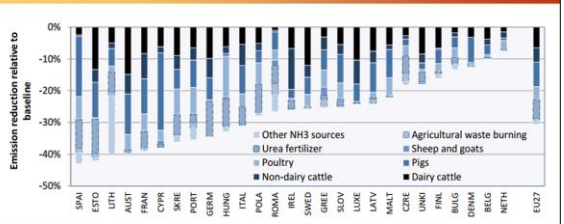
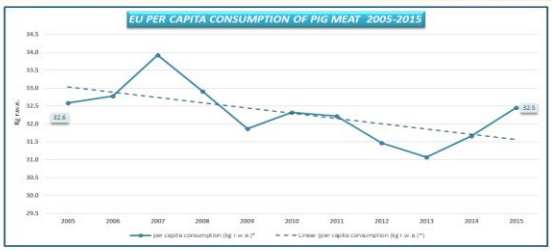


Figure 5.15: Mitigation potentials for NH_3 emissions in 2030 on top of current legislation

Source: Future emissions of air pollutants in Europe – Current legislation baseline and the scope for further reductions TSAP Report # 1

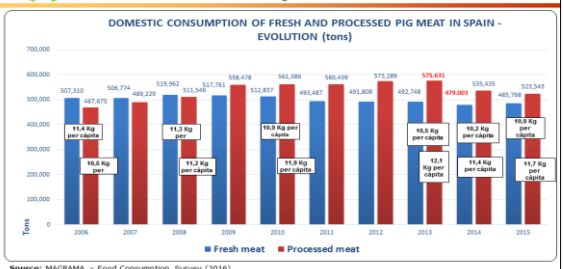
Growth or specialization?

Trends in consumption



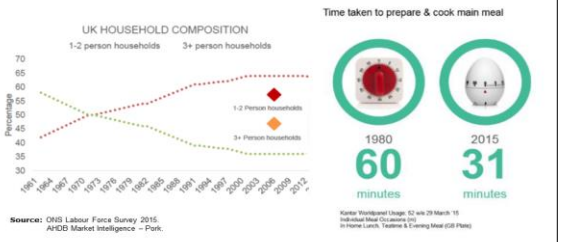
Source: Draft preliminary EU agricultural market outlook 2016-2026.

Trends in consumption: fresh and processed meat



Source: MAGRAMA – Food Consumption Survey (2016)

Trends in consumption



Source: ONS Labour Force Survey 2015.
AHDB Market Intelligence – Pork.

Trends in consumption

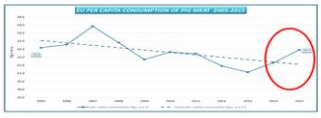
World Health Organization

World Health Organization Says Processed Meat Causes Cancer

Article date: October 26, 2015

By Stacy Simon

The International Agency for Research on Cancer (IARC) has classified processed meat as a carcinogen, something that causes cancer. And it has classified red meat as a probable carcinogen, something that probably causes cancer. IARC is the cancer agency of the World Health Organization.

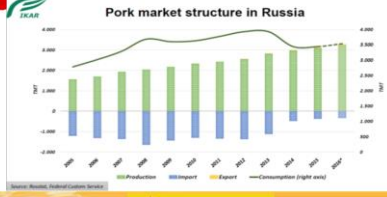


The trade dilemma

Trade prospects are drastically driven by:

- Sanitary status
- Trade agreements
- Evolution of demand

Evolution of Russian profile

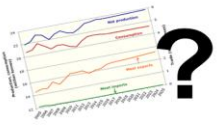


Evolution of China's profile

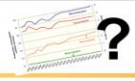
	2010	2015	2020	Change
Production (million tones)	50.71	54.87	57.60	(↑ 5%)
self-sufficient rate of p ork	99.7%	98.6%	95%	(↓ 3.6%)
Finished Pigs per sow per year	13	15	19	(↑ 26.7%)
Share of scale farm (> 500 heads/farm)	38%	42%(2014)	52%	(↑ 10%)
feed conversion rate of fatten pig	2.9:1	2.8:1	2.7:1	(↑ 3.6%)

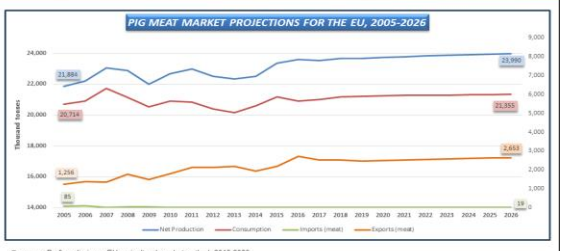
Source: The Development Plan of Pig industry 2016_2020, MOA

OUTLOOK 2016-2026 FIGURES: OVERVIEW

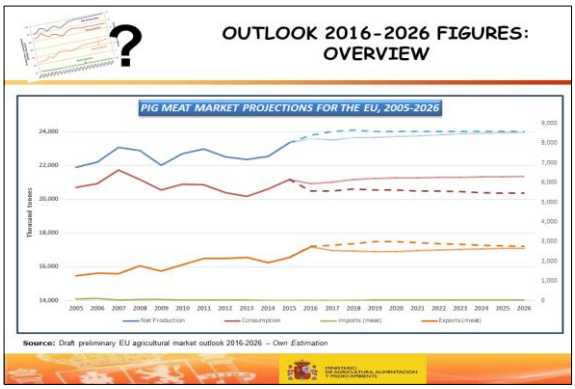


OUTLOOK 2016-2026 FIGURES: OVERVIEW

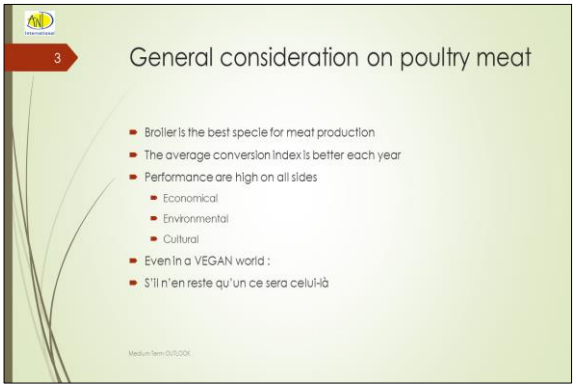


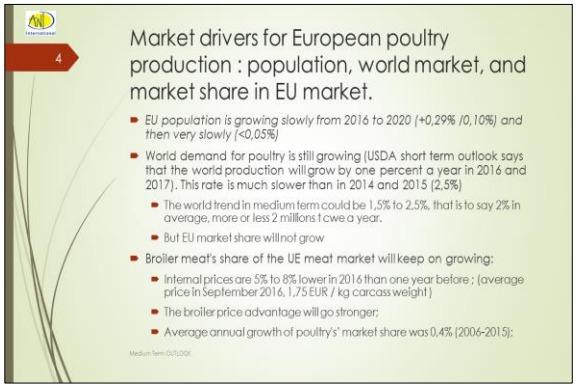


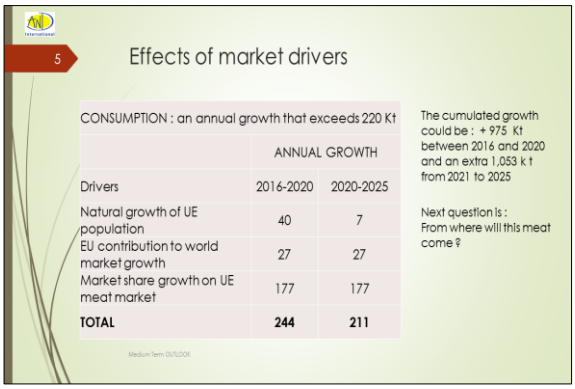
Source: Draft preliminary EU agricultural market outlook 2016-2026

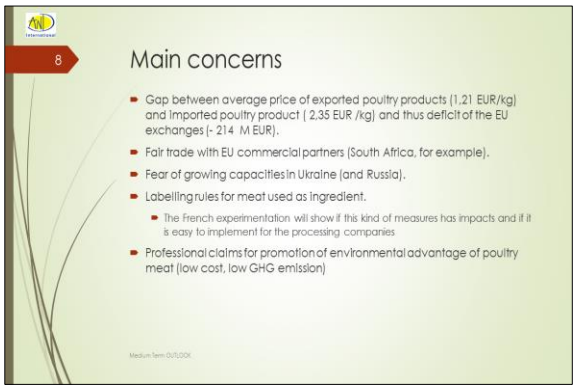


Christian Renault (AND International)



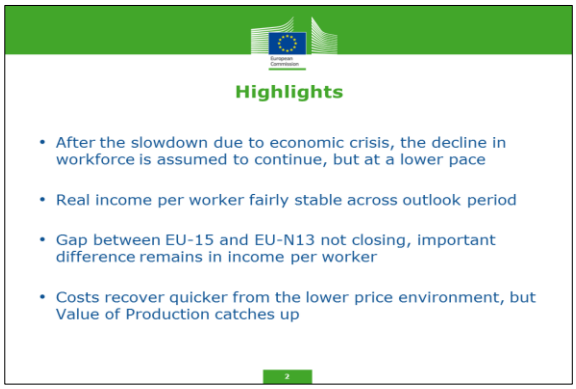


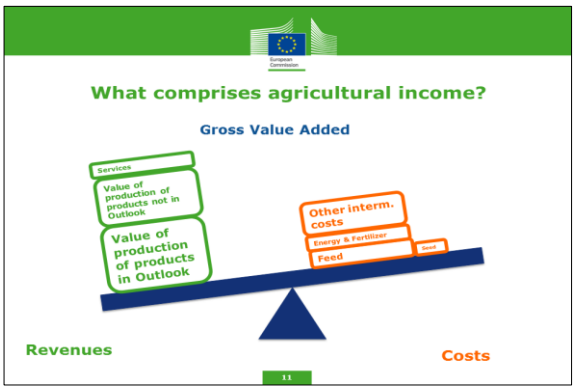


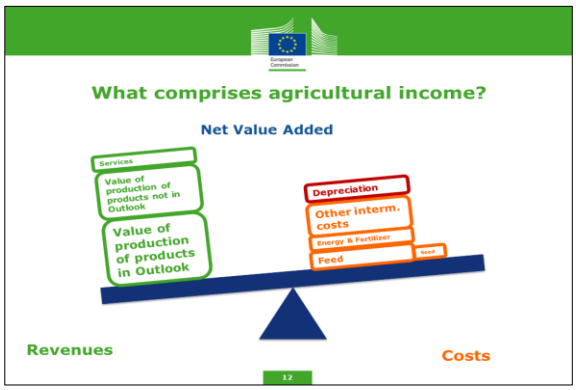


Session: Agricultural income, and environment

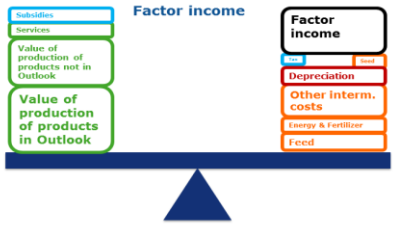
Koen Mondelaers (DG AGRI)





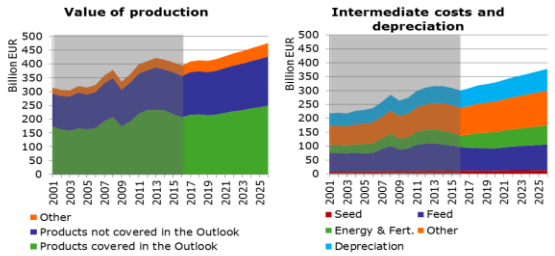


What comprises agricultural income?



14

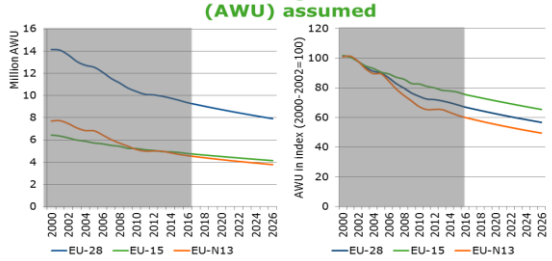
Value of production and costs



Source: Preliminary DG AGRI Outlook

15

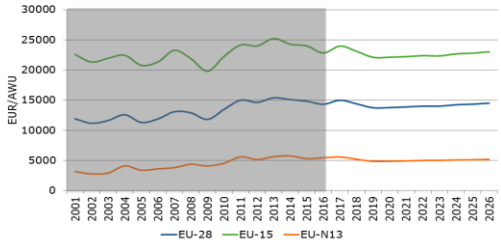
Continued decrease in agricultural workforce (AWU) assumed



Source: Preliminary DG AGRI Outlook

16

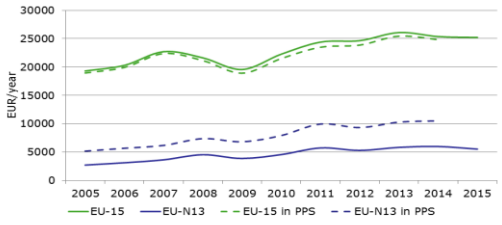
Stable real income per work unit in EU-28



Source: Preliminary DG AGRI outlook

17

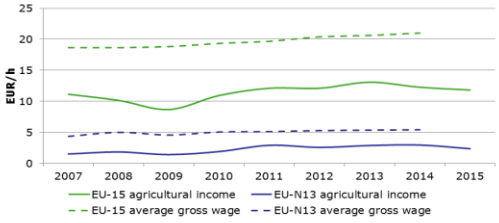
Factor income per labour force in PPS



Source: EAA
PPS = Purchasing Power Standard

18

Average wage vs. agricultural income per hour



Source: based on CAP context indicator - C26

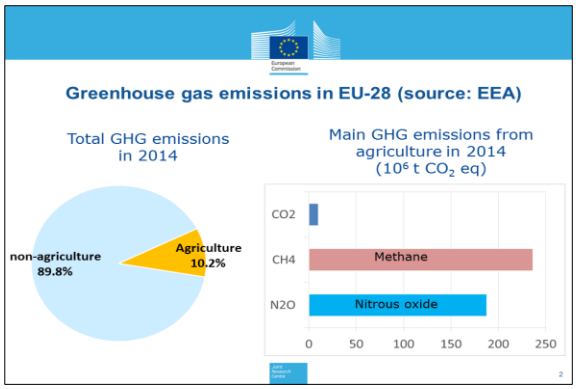
19

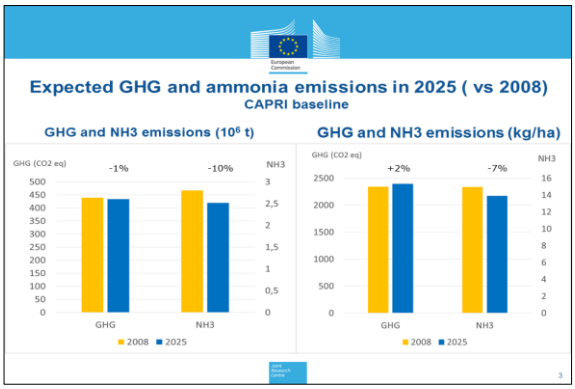
Main uncertainties

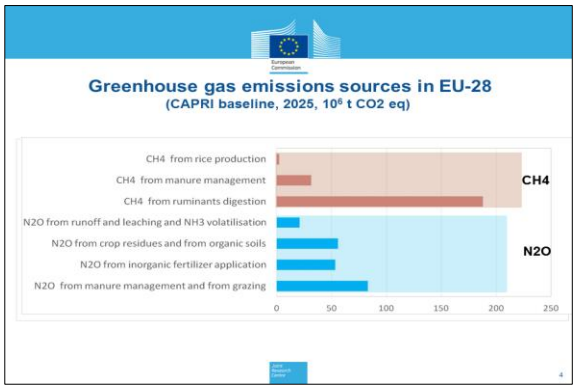
- **Pace for labour outflow too slow/too high?**
- **Income gap between EU-N13 and EU-15 not closing?**
- **Inflation effect on costs?**

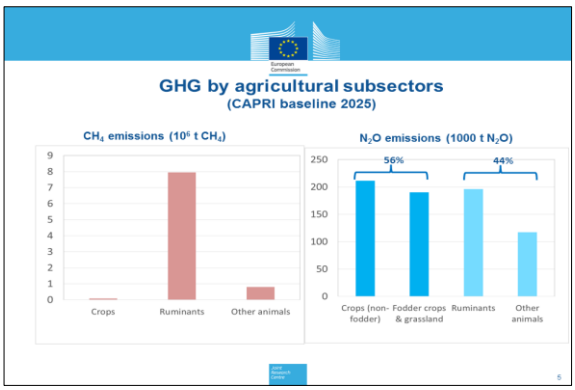
20

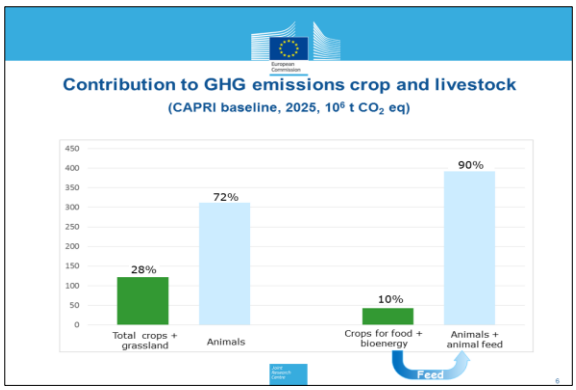
Jean-Michel Terres (JRC)

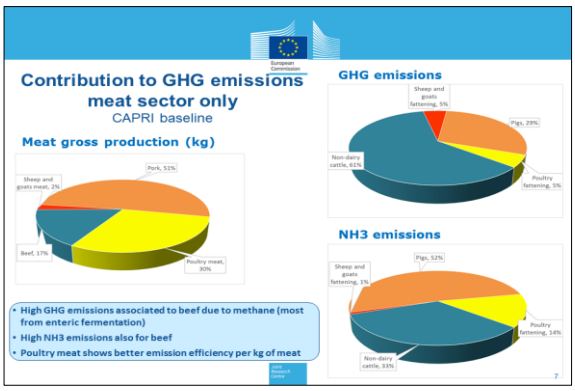


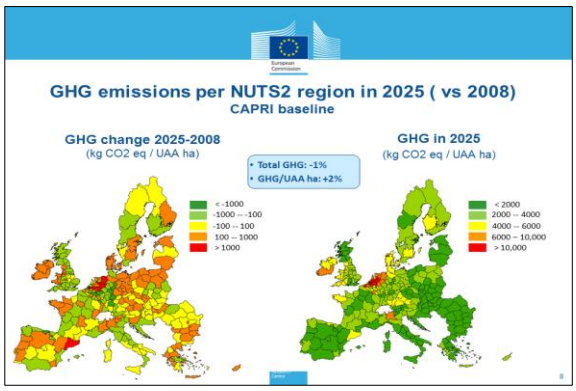


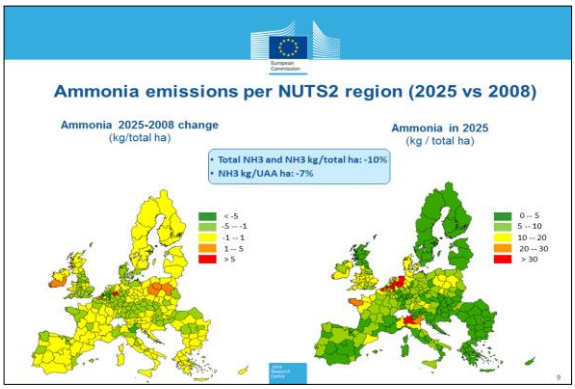


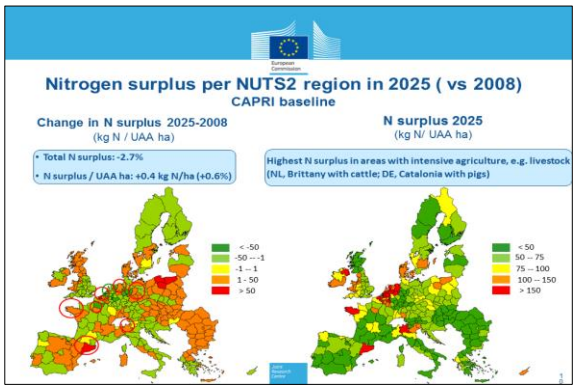









Ammonia emissions per NUTS2 region (2025 vs 2008)
Ammonia 2025-2008 change
(kg/total ha)
Ammonia in 2025
(kg / total ha)
• Total NH3 and NH3 kg/total ha: -10%
• NH3 kg/UAA ha: -7%
< -5
-5 -- -1
-1 -- 1
1 -- 5
> 5
0 -- 5
5 -- 10
10 -- 20
20 -- 30
> 30


Nitrogen surplus per NUTS2 region in 2025 (vs 2008)
CAPRI baseline
Change in N surplus 2025-2008
(kg N / UAA ha)
N surplus 2025
(kg N/ UAA ha)
• Total N surplus: -2.7%
• N surplus / UAA ha: +0.4 kg N/ha (+0.6%)
Highest N surplus in areas with intensive agriculture, e.g. livestock
(NL, Brittany with cattle; DE, Catalonia with pigs)
< -50
-50 --- -1
-1 -- 1
1 - 50
> 50
< 50
50 -- 75
75 -- 100
100 -- 150
> 150

Annex 3: Previous workshop proceedings

Proceedings of previous workshops are available from the JRC Science Hub website (https://ec.europa.eu/jrc/en):

Bartova, L., M'barek, R. (eds) (2008). Commodity Modelling in an Enlarged Europe. November 2006 Workshop Proceedings. AGMEMOD Report V. JRC Scientific and Technical Reports, European Commission, EUR 22940 EN/5. http://ftp.jrc.es/EURdoc/JRC42096.pdf

Bartova, L., Gay, S.H., M'barek, R. (eds) (2008). Commodity Market Development in Europe - Outlook. November 2007 Workshop Proceedings. JRC Technical Notes, European Commission, EUR 23377EN. http://ftp.jrc.es/EURdoc/JRC44305.pdf

Fellmann, T., M'barek, R., Gay, S.H. (2009). Commodity Market Development in Europe - Outlook. November 2008 Workshop Proceedings. JRC Technical Notes, European Commission, JRC 51276. http://ftp.jrc.es/EURdoc/JRC51276_TN.pdf

Fellmann, T., Van Doorslaer, B., M'barek, R., Gay, S.H. (2010). Commodity Market Development in Europe - Outlook. November 2009 Workshop Proceedings. JRC Technical Notes, European Commission, JRC 60425. http://ftp.jrc.es/EURdoc/JRC60425.pdf

Fellmann, T., M'barek, R., Gay, S.H. (2011). Commodity Market Development in Europe - Outlook. October 2010 Workshop Proceedings. JRC Scientific and Technical Reports, European Commission, JRC 65170. http://ftp.jrc.es/EURdoc/JRC65170.pdf

Fellmann, T., Hélaine, S. (2011). Commodity Market Development in Europe - Outlook. October 2011 Workshop Proceedings. JRC Scientific and Technical Reports, European Commission, JRC 67918. http://ftp.jrc.es/EURdoc/JRC67918.pdf

Fellmann, T., Hélaine, S. (2012). Commodity Market Development in Europe - Outlook. October 2012 Workshop Proceedings. JRC Scientific and Policy Reports, European Commission, JRC 76028. http://ftp.jrc.es/EURdoc/JRC76028.pdf

Fellmann, T., Santini, F. (2014). Commodity Market Development in Europe - Outlook. October 2013 Workshop Proceedings. JRC Scientific and Policy Reports, European Commission, JRC 85607. http://ftp.jrc.es/EURdoc/JRC85607.pdf

Şuta, C-M., Araujo Enciso, S.R., Pérez Domínguez, I., Fellmann, T., Santini, F. (2014). Commodity Market Development in Europe - Outlook Workshop 2014. Proceedings. JRC Scientific and Policy Reports, European Commission, JRC 92558. http://agrilife.jrc.ec.europa.eu/documents/JRC92558.pdf

Ronzon, T., Santini, F., Araujo Enciso, S.R., Fellmann, T., Pérez Domínguez, I. (2015). Medium-term outlook for the EU agricultural commodity market - Proceedings of the October 2015 workshop. JRC Scientific and Policy Reports, European Commission, JRC 98329. https://ec.europa.eu/jrc/en/publication/medium-term-outlook-eu-agricultural-commodity-market-proceedings-october-2015-workshop

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